DAVID LAIDLER, Research Coordinator

Approaches to Economic Well-Being

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This is Volume 26 in the series of studies commissioned as part of the research program of the Royal Commission on the Economic Union and Development Prospects for Canada.

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FOREWORD

When the members of the Rowell-Sirois Commission began their collective task in 1937, very little was known about the evolution of the Canadian economy. What was known, moreover, had not been extensively analyzed by the slender cadre of social scientists of the day.

When we set out upon our task nearly 50 years later, we enjoyed a substantial advantage over our predecessors; we had a wealth of information. We inherited the work of scholars at universities across Canada and we had the benefit of the work of experts from private research institutes and publicly sponsored organizations such as the Ontario Economic Council and the Economic Council of Canada. Although there were still important gaps, our problem was not a shortage of information; it was to interrelate and integrate — to synthesize — the results of much of the information we already had.

The mandate of this Commission is unusually broad. It encompasses many of the fundamental policy issues expected to confront the people of Canada and their governments for the next several decades. The nature of the mandate also identified, in advance, the subject matter for much of the research and suggested the scope of enquiry and the need for vigorous efforts to interrelate and integrate the research disciplines. The resulting research program, therefore, is particularly noteworthy in three respects: along with original research studies, it includes survey papers which synthesize work already done in specialized fields; it avoids duplication of work which, in the judgment of the Canadian research community, has already been well done; and, considered as a whole, it is the most thorough examination of the Canadian economic, political and legal systems ever undertaken by an independent agency.

The Commission's Research Program was carried out under the joint direction of three prominent and highly respected Canadian scholars: Dr. Ivan Bernier (*Law and Constitutional Issues*), Dr. Alan Cairns (*Politics and Institutions of Government*) and Dr. David C. Smith (*Economics*).

Dr. Ivan Bernier is Dean of the Faculty of Law at Laval University. Dr. Alan Cairns is former Head of the Department of Political Science at the University of British Columbia and, prior to joining the Commission, was William Lyon Mackenzie King Visiting Professor of Canadian Studies at Harvard University. Dr. David C. Smith, former Head of the Department of Economics at Queen's University in Kingston, is now Principal of that University. When Dr. Smith assumed his new responsibilities at Queen's in September, 1984, he was succeeded by Dr. Kenneth Norrie of the University of Alberta and John Sargent of the federal Department of Finance, who together acted as co-directors of Research for the concluding phase of the Economics research program.

I am confident that the efforts of the Research Directors, research coordinators and authors whose work appears in this and other volumes, have provided the community of Canadian scholars and policy makers with a series of publications that will continue to be of value for many years to come. And I hope that the value of the research program to Canadian scholarship will be enhanced by the fact that Commission research is being made available to interested readers in both English and French.

I extend my personal thanks, and that of my fellow Commissioners, to the Research Directors and those immediately associated with them in the Commission's research program. I also want to thank the members of the many research advisory groups whose counsel contributed so substantially to this undertaking.

Donald S. Macdonald

INTRODUCTION

At its most general level, the Royal Commission's research program has examined how the Canadian political economy can better adapt to change. As a basis of enquiry, this question reflects our belief that the future will always take us partly by surprise. Our political, legal and economic institutions should therefore be flexible enough to accommodate surprises and yet solid enough to ensure that they help us meet our future goals. This theme of an adaptive political economy led us to explore the interdependencies between political, legal and economic systems and drew our research efforts in an interdisciplinary direction.

The sheer magnitude of the research output (more than 280 separate studies in 72 volumes) as well as its disciplinary and ideological diversity have, however, made complete integration impossible and, we have concluded, undesirable. The research output as a whole brings varying perspectives and methodologies to the study of common problems and we therefore urge readers to look beyond their particular field of interest and to explore topics across disciplines.

The three research areas, *Law and Constitutional Issues*, under Ivan Bernier, *Politics and Institutions of Government* under Alan Cairns, and *Economics* under David C. Smith (co-directed with Kenneth Norrie and John Sargent for the concluding phase of the research program) — were further divided into 19 sections headed by research coordinators.

The area *Law and Constitutional Issues* has been organized into five major sections headed by the research coordinators identified below.

- Law, Society and the Economy — *Ivan Bernier and Andrée Lajoie*
- The International Legal Environment — *John J. Quinn*
- The Canadian Economic Union — *Mark Krasnick*
- Harmonization of Laws in Canada — *Ronald C.C. Cuming*
- Institutional and Constitutional Arrangements — *Clare F. Beckton and A. Wayne MacKay*

Since law in its numerous manifestations is the most fundamental means of implementing state policy, it was necessary to investigate how and when law could be mobilized most effectively to address the problems raised by the Commission's mandate. Adopting a broad perspective, researchers examined Canada's legal system from the standpoint of how law evolves as a result of social, economic and political changes and how, in turn, law brings about changes in our social, economic and political conduct.

Within *Politics and Institutions of Government*, research has been organized into seven major sections.

- Canada and the International Political Economy — *Denis Stairs and Gilbert Winham*
- State and Society in the Modern Era — *Keith Banting*
- Constitutionalism, Citizenship and Society — *Alan Cairns and Cynthia Williams*
- The Politics of Canadian Federalism — *Richard Simeon*
- Representative Institutions — *Peter Aucoin*
- The Politics of Economic Policy — *G. Bruce Doern*
- Industrial Policy — *André Blais*

This area examines a number of developments which have led Canadians to question their ability to govern themselves wisely and effectively. Many of these developments are not unique to Canada and a number of comparative studies canvass and assess how others have coped with similar problems. Within the context of the Canadian heritage of parliamentary government, federalism, a mixed economy, and a bilingual and multicultural society, the research also explores ways of rearranging the relationships of power and influence among institutions to restore and enhance the fundamental democratic principles of representativeness, responsiveness and accountability.

Economics research was organized into seven major sections.

- Macroeconomics — *John Sargent*
- Federalism and the Economic Union — *Kenneth Norrie*
- Industrial Structure — *Donald G. McFetridge*
- International Trade — *John Whalley*
- Income Distribution and Economic Security — *François Vaillancourt*
- Labour Markets and Labour Relations — *Craig Riddell*
- Economic Ideas and Social Issues — *David Laidler*

Economics research examines the allocation of Canada's human and other resources, how institutions and policies affect this allocation, and the distribution of the gains from their use. It also considers the nature of economic development, the forces that shape our regional and industrial structure, and our economic interdependence with other countries. The thrust of the research in economics is to increase our comprehension of

what determines our economic potential and how instruments of economic policy may move us closer to our future goals.

One section from each of the three research areas — The Canadian Economic Union, The Politics of Canadian Federalism, and Federalism and the Economic Union — have been blended into one unified research effort. Consequently, the volumes on Federalism and the Economic Union as well as the volume on The North are the results of an interdisciplinary research effort.

We owe a special debt to the research coordinators. Not only did they organize, assemble and analyze the many research studies and combine their major findings in overviews, but they also made substantial contributions to the Final Report. We wish to thank them for their performance, often under heavy pressure.

Unfortunately, space does not permit us to thank all members of the Commission staff individually. However, we are particularly grateful to the Chairman, The Hon. Donald S. Macdonald, the Commission's Executive Director, Gerald Godsoe, and the Director of Policy, Alan Nymark, all of whom were closely involved with the Research Program and played key roles in the contribution of Research to the Final Report. We wish to express our appreciation to the Commission's Administrative Advisor, Harry Stewart, for his guidance and advice, and to the Director of Publishing, Ed Matheson, who managed the research publication process. A special thanks to Jamie Benidickson, Policy Coordinator and Special Assistant to the Chairman, who played a valuable liaison role between Research and the Chairman and Commissioners. We are also grateful to our office administrator, Donna Stebbing, and to our secretarial staff, Monique Carpentier, Barbara Cowtan, Tina DeLuca, Françoise Guilbault and Marilyn Sheldon.

Finally, a well deserved thank you to our closest assistants, Jacques J.M. Shore, *Law and Constitutional Issues*; Cynthia Williams and her successor Karen Jackson, *Politics and Institutions of Government*; and I. Lilla Connidis, *Economics*. We appreciate not only their individual contribution to each research area, but also their cooperative contribution to the research program and the Commission.

IVAN BERNIER
ALAN CAIRNS
DAVID C. SMITH

PREFACE

The thirteen essays contained in this volume and its companion are the product of the Commission's research program in "Economic Ideas and Social Issues." Taken together, these two volumes make up what I hope will be judged a balanced account of the current state of economists' thinking about certain aspects of the theory of economic policy. Their coverage is not, of course, comprehensive. Some topics which would certainly have merited one or more essays, had these two volumes been conceived of in isolation, were of such importance to the Commission's work that whole volumes, or even sets of volumes, are devoted to them elsewhere in its research output. Thus, though matters of macroeconomic policy, trade policy, industrial policy, the labour market, income security, the conduct of policy in a federal state, and so on, are all touched on here, and some of them quite heavily, their treatment does not purport to be complete.

These two volumes concentrate on such matters as the meaning of economic well-being and the way in which social and political organization impinges upon a society's ability to achieve and sustain it. In particular they discuss the consequences of the private pursuit of individual well-being for society as a whole, and consider the extent to which collective action, organized through government, is a desirable supplement to, or indeed substitute for, such private activity. Thus, the problems addressed here overlap not just with issues studied elsewhere in the Economics research program, but also in the Law and Institutions programs. The perspective of our studies is nevertheless that of the economist. Good interdisciplinary research occurs, not when an economist plays amateur lawyer and political scientist, but when specialists from various disciplines study a common set of problems, each one bringing to that

study the special insights of their own areas. None of the contributors to these volumes, therefore, claims a monopoly of expertise on the issues studied, but each could claim, quite rightly, that economic analysis provides a powerful tool with which to study them. Economics does not have all the answers, but it does have some of the questions.

At the risk of considerable oversimplification, it is possible to distinguish two distinct strands in economists' thinking about the theory of policy, one associated with so-called "welfare economics," and the other with "public choice theory." The former concentrates on questions about the nature of economic well-being, and what individuals and their governments ought to do to achieve it. The latter, building upon the economist's insight, limited no doubt, but valuable for all that, that individuals tend to look after themselves first and the rest of society later, asks questions about the way in which legal and political institutions affect individuals' behaviour, and about how those institutions can be designed to minimize the degree of conflict between public and private goals. Moreover, "welfare economics" traditionally assumed a rather stable economic environment in developing its theorems. Economists working in the "public choice" tradition are more inclined to take a changing and uncertain environment as the norm.

These two broad themes are by now so intertwined in the literature on the theory of economic policy that it has become impossible to invoke one of them without also referring to the other. Nevertheless, our two volumes may be distinguished in a rough and ready way by the relative emphasis which they give to these two strands of thought. The first of them, which begins with an overview essay designed to place the individual contribution to both volumes in a common perspective, thereafter concentrates on the nature of well-being and the role of government in providing for it through the welfare state, the tax system, and in measures designed to deal with failures of the market mechanism properly to utilize society's scarce resources. The second, beginning as it does with a study of the history of certain types of market failure, and political attempts to deal with them, concentrates more heavily upon the way in which legal and political constraints influence the attempts of individuals, both as private economic agents, but also as political beings, to deal with their own and their society's constantly evolving economic problems.

The differences here are matters of emphasis, however. When all is said and done, the fact that the results of our research on "Economic Ideas and Social Issues" have been divided into two volumes of roughly equal length has more to do with the physical problems of printing and bookbinding than with any sharp intellectual division in their subject matter. Though each essay may be read as an entity in its own right, and though I hope that readers will find each of these two volumes worthwhile in and

of itself, it is nevertheless the case that, when this research program was planned, it was hoped that its results would be sufficiently well integrated to stand as a single collection. How well we have succeeded in achieving that goal must be left to the reader to judge.

DAVID LAIDLER

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To edit the collection of essays contained in this volume and its companion was an intellectually rewarding and challenging task, but I could not have carried it out alone. At every stage in the endeavour invaluable help was available from a research advisory group whose members included:

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D.L.

Economic Ideas and Social Issues: *An Overview*

DAVID LAIDLER

Introduction

The papers in this collection deal with the theory of economic policy and its application to Canadian problems, particularly as that theory relates to questions about resource allocation, income and wealth distribution, and the balance between public and private sectors in the nation's economic life.

At one time, the theory of economic policy was almost exclusively concerned with such normative questions as what would be a "good" allocation of resources, or a "just" distribution of income; and what policies government "ought" to implement to achieve these desirable goals. These questions also tended to be analyzed against the background of a given technical and institutional environment. To this subject matter, known as "welfare economics" and difficult enough in its own right, has now been added a new and important set of positive questions. How is economic policy actually formulated? How do goals emerge from political processes, and how are they translated into action by politicians and bureaucrats? These new issues, often referred to as "public choice" questions, are typically analyzed in an environment of continuous and unpredictable change.

Public choice theory does not replace welfare economics, but rather supplements it. It helps us to understand why principles yielded by the latter frequently fail to dominate the actual design of policy. More positively, and more tentatively, public choice theory helps us to think of ways to bring actual policy goals into closer conformity with those that welfare economics tells us should be pursued. In particular, it directs our attention to interactions between the conduct of policy and the institutional framework within which it is formulated.

The essays in this collection deal with topics both in welfare economics and in the public choice area. By and large, the subject matter of the first volume is more traditional in nature than that of the second, but recent years have seen so much cross fertilization between these two broad areas that the divisions here are far from clear-cut. Because each of the essays that follow is, to a considerable extent, itself a survey of a major body of literature, it was not feasible to produce an overview paper that was simply a survey of surveys. Hence I have chosen to use this introductory essay to set out the relationship between the most fundamental concepts of economics and the theory of policy, as well as to provide the reader of this collection with a coherent framework into which the particular issues dealt with by other contributors may be fitted. In doing so, I have drawn extensively upon their work, but I have not attempted a systematic summary of it. In short, this essay is an introduction to those that follow and not a substitute for them.

Fundamental Ideas

Scarcity and Self-Interest

No idea could be of more basic importance to the discussion of economic policy than scarcity, which has long been the central concept of economics.[1] This notion is rich in the insight it yields, but straightforward in meaning nevertheless. "Scarcity" is the name we give to the simple fact that, relative to the means available to satisfy them, human wants are, in effect, without limit. Thus characterized, scarcity is often referred to as "the economic problem," although this usage can be misleading. We are accustomed to think of problems as having solutions, but the economic problem cannot be "solved" in any once-and-for-all sense. Individuals and societies must endure scarcity continuously; at some times they will cope with it more successfully than at others, but they will never free themselves of it. Thus, the first and most important lesson that economics yields about the issues which currently face Canada is that dealing with them must be an ongoing process.

Individuals and societies face their own versions of the economic problem and, in large (but *not* total) measure, what we perceive as the outcome of a society's attempt to cope with scarcity is nothing more than the outcome of the activities of individuals dealing with their own difficulties. Since the first publication of Adam Smith's *Wealth of Nations* in 1776, economics has made much of the postulate that individuals act in a self-interested fashion. This is not to deny the existence of altruism, or to argue that no-one ever acts out of concern for the public interest. However, it is to say that self-interest is a powerful motive underlying individuals' attempts to cope with the economic problem as it faces them.[2] The explanatory power of this postulate is unquestionable and

extremely wide ranging, so much so that the second general lesson of economics for those concerned with policy must be that anyone intent on engineering social change should take self-interested behaviour into account, and design reforms in such a way as to work with, rather than against, the powerful forces implicit in it.

The fact of scarcity, and the propensity of individual agents to act in a self-interested manner, both raise ethical issues. Some might argue that many of the "wants" which individuals and societies wish to satisfy are, in one way or another, morally unworthy. Others might regret that so much individual behaviour seems to be motivated by self-interest and so little by altruism. The injunction that the design and implementation of social policy should take scarcity and self-interest into account does not, however, imply ethical approval of these phenomena. It simply implies recognition of their existence and importance, and involves a primarily pragmatic (rather than moral) judgment that policies, designed with a view to their effectiveness in the world as it is, are more likely to achieve their ends than those constructed for the world as it "ought" to be.

To understand the behavioural consequences of scarcity as it impinges upon the individual agent presents formidable analytical problems in its own right. In order to come to grips with them, economists have found it useful to invent a highly simplified caricature of a human being: namely *homo oeconomicus*, the completely self-interested rationally calculating agent.[3] They usually present this creature as being endowed with a certain command over resources which he then allocates in such a way as best to satisfy his wants, as perceived by himself. The details of the economic analysis of individual choice-making behaviour need not concern us here; but it is important to note that one characteristic of individual choice in conditions of scarcity, that it involves selection among desirable ends, is also present at the social level. This simple fact implies a third lesson for economic policy discussion: namely that the pursuit of a particular goal can never be justified adequately by an argument that it is desirable in and of itself. The argument must always be cast in terms of the greater (or lesser) desirability of alternative goals among which individuals and society have inevitably to choose.

It is obvious that, the more resources with which *homo oeconomicus* is endowed, the better he will be able to satisfy his wants. There is considerable potential for conflict inherent in a society made up of such creatures, because any one of them can always make himself better off by taking resources from another. This conclusion also holds true of real world societies: an individual member can change the terms of his own economic problem for the better by altering the terms of someone else's problem for the worse. If we put the point as starkly as this, and even if we make due allowance for the fact that, unlike *homo oeconomicus*, *homo sapiens* is, after all, subject to many motives other than self-interest, what seems remarkable about contemporary Canada is not that so many

disputes threaten to divide it, but rather that so few of them do. But, of course, the point has been put too starkly. It is possible for one individual to make himself better off by taking resources from another, but it is also possible for individuals, even self-interested individuals, to cooperate with one another to mutual advantage.

The extent to which individual behaviour in any time and place is characterized by destructive antagonism on the one hand and constructive cooperation on the other depends upon incentives, and these in turn depend upon the institutional arrangements that define the way in which individuals relate to one another. Here we have a fourth and crucial lesson for those concerned with policy, which is really a corollary of the first three: namely that a critical element in economic policy making must be the design of institutional mechanisms which cause individual agents, more prone to look to their own interests than to those of others, nevertheless to make choices which promote society's well-being.

Voluntary Exchange and Private Property

The notion that self-interested behaviour can, and frequently does, promote the well-being of others is a venerable one in the history of economic and social thought. Once again we must cite Smith's (1776) *Wealth of Nations* as the *locus classicus* of a powerful and valuable idea. It is crucial to understand, though, that such a proposition does not hold true for every kind of self-interested behaviour. The thief who is not caught promotes his own well-being, but not that of his victim. Only a particular class of self-interested activity, in a specific institutional setting, produces socially desirable consequences. The class of activity in question is conveniently termed voluntary exchange. The social institution that permits such exchange to take place is private property; because agents who are not vested with property rights in things do not have anything to exchange in the first place.

A good part of any agent's endowment of resources consists of the capacity for productive work, and even isolated individuals can improve their lot by engaging in production. However, it is exchange that creates for them the opportunity to specialize in production and reap the benefits of the division of labour. The same is true of the use of resources, human and other, in activities designed to render more productive the techniques whereby various raw materials and services are transformed into output. The activity is productive even in isolation, but much more so when the opportunity exists to exchange its output for the products of others. The reader will thus find it helpful to think of the production of goods and services for sale, and of innovative activity too, as being subsumed in that term "exchange." One might even go so far as to say that, in all such activities, the individual takes resources and exchanges them, with "nature" as an intermediate step when engaging in production and innova-

tion, and with other agents when engaging in trade proper.[4]

Modern economic analysis of the mechanisms and consequences of voluntary exchange, so broadly conceived, is extraordinarily abstract, and relies upon advanced mathematical techniques to establish its results, but it is easy enough to gain an intuitive insight into why such activity produces socially beneficial results; the critical element here is its *voluntary* nature.[5] Consider the completely self-regarding *homo oeconomicus*. Almost by definition, this creature will only offer something that he owns to someone else in exchange for a piece of their property if he believes that the exchange will render him better off according to his own lights. In a society consisting solely of such creatures, this proposition must hold true on both sides of every bargain that is struck, and it must also hold true of decisions to engage in production processes or to undertake innovations with a view to generating more, or new, exchangeable output from existing endowments. If each such a bargain or production decision does indeed improve the welfare of those who make it, *without influencing the welfare of third parties not involved in it*, then there is a very real sense in which voluntary exchange may be said to promote the well-being of the whole society whose members engage in such activity.

This argument, and variations on it, provide the basis of the case for organizing economic activity on a market, or laissez-faire, basis even today. The very fact that the most economically successful societies that human history has ever seen, those of Western Europe and North America, organize, and have for two centuries organized much of their economic life on a market basis suggests that there is a hard core of truth to the argument. However, even in its heyday, laissez-faire was never adopted as an overriding principle governing economic activity, while the last century, and particularly the last fifty years, has seen a shift away from the market toward forms of economic organization that vest more responsibility for economic matters in various collective agencies which, taken together, we may loosely call "the state." This fact suggests that, beneficial though voluntary exchange may be, it has been universally perceived as not providing adequately for the economic well-being of society. Much of this essay, and of the other contributions to this volume, will be concerned with assessing the extent to which such a perception is justified. Among the central issues of contemporary policy debates, not just in Canada but throughout the Western world, is the question whether retreat from the market has gone too far, or not far enough, and whether it has occurred in the right places.

The Role of the State in the Economy

No society, not even the most individualistic, can do without collective institutions. Private property rights are a necessary prerequisite for voluntary exchange, but the definition of such rights, not to mention their con-

tinuing enforcement, must be a social rather than a purely individual matter. Underpinning a market economy must be a system of law and a mechanism for enforcing it. It takes real resources to provide and maintain such institutions, however, and scarcity implies that these resources have alternative uses in the production of goods and services for private consumption. Moreover, the resources needed to maintain a system of voluntary exchange cannot be allocated toward this use by these institutions themselves. Legal rights and their enforcement cannot be bought and sold on a piecemeal bilateral basis, for obvious enough reasons; nor can a society of self-interested individuals be expected to provide the necessary resources by a process of individual voluntary subscription.[6]

The well-known free rider problem turns up in its most fundamental form in this context.Every member of society obtains benefits from the existence of a legal system that defines and enforces property rights, and cannot be excluded from enjoying those benefits: in this sense the system is a public good, but the maintenance of the system requires resources, which must be provided by individuals from their own endowments. To most people it must appear that, if everyone else makes a contribution to its upkeep, then the system will exist, and provide its benefits to them, regardless of whether they make a contribution. If they are self-interested they will withhold their individual contributions, and seek a free ride at the expense of others. But if one typical self-interested agent acts in this way, then so will they all; and a legal system will not be provided even though it is in the interests of everyone to ensure that it is. The solution to this dilemma is for individuals to agree to permit themselves to be coerced by a collective agency — a tax collector — into paying a levy that will provide for the upkeep of the legal system, including that part of it which defines the obligation to pay taxes.

In short, an embryo state with coercive powers, including that of taxation, is a necessary component of any set of social institutions that permit economic life to be organized on the basis of voluntary exchange. Moreover, the justification for the state's existence is precisely that its activities contribute to the well-being of the individuals who make up society. But why should we stop the argument at this point? Is it really the case that the limits of socially beneficial collective action are reached with the establishment of a legal system and a taxation system to pay for it, with the creation of what is often called a "night-watchman state?" And if they are not, should not the powers of the embryo state be extended in order to permit it to undertake other beneficial activities on behalf of the individual agents whose creature it is?

These questions force us to engage in four distinct, but interrelated, lines of enquiry. First we need to look, much more closely than we have so far, into the meaning of that elusive concept "well-being." Second we need to analyze, with more care than we have taken so far, the extent to which voluntary exchange does indeed promote well-being. Third, and

on the safe assumption that voluntary exchange falls short of perfection in this regard, we need to ask whether it is possible in principle to design measures that will deliver a better outcome. Fourth and finally, bearing in mind that collective agencies must be manned by the same self-interested agents whose private trading activities fail to produce satisfactory results in the first place, we must ask about the feasibility in practice of getting such measures implemented. We shall take up each of these matters in turn in the following pages.

The Nature of Economic Well-Being

Economic and Non-Economic Goals

Homo oeconomicus is, as we have already remarked, a simple creature. The self-interested acts of producing, trading, and consuming scarce goods are the sum total, not just of his economic life, but of his social life as well. His general welfare is identical with his economic welfare. *Homo sapiens* is more complicated. In particular, his economic welfare, conceived of as the satisfaction he obtains from the consumption of goods and services (net of the effort put into obtaining them) is only one aspect of the welfare that should concern us when we discuss the design of social, political, and economic institutions and policies. Freedom has many dimensions that are important for individuals apart from the freedom to exchange goods and services in the market place; equality has many dimensions apart from equality of income or wealth; and so on.

The assessment of the general well-being of individuals must be concerned with the extent to which they benefit from such non-economic values, as well as with their economic welfare.[7] In the remainder of this essay, these matters will be downplayed, not because non-economic values are unimportant, but because the economic aspects of well-being in and of themselves provide more than enough material for us to deal with. However, any conclusions we may reach about the possibility, or impossibility, of enhancing economic well-being by taking or not taking particular actions, must be subjected to questions about their continuing validity when the pursuit of non-economic ends is taken into account, before they are accepted as providing a firm basis for policy actions. Though economic and non-economic issues can be discussed separately, as I trust this essay will demonstrate, the separation in question is not complete and is probably more clearly defined in theory than it is in practice.

Economic Efficiency

As Osberg points out, our concern for the measurement of economic well-being arises mainly from our desire to rank various social situations, and

we are usually more concerned to be able to say something about the direction in which well-being changes in response to specific events than we are with assessing its level.[8] This is often a manageable problem in the case of the individual agent, because it is frequently possible to draw conclusions about whether or not an individual is better off as a result of some change in circumstances by observing that individual's behaviour. In economists' jargon, behaviour reveals preferences. Suppose that, after some change, the individual's original pattern of production, trading, and consumption activity is still open, but that we observe a change in behaviour. In such circumstances, if we rule out a change in tastes, the assumption that the individual acts in a purely self-interested fashion is enough to enable us to say that the change has increased well-being. Moreover, we can make this statement without having to know anything about *how* well off the individual is, either before or after the change in question.[9]

This line of reasoning underlies the modern liberal economist's presumption that any policy measure which widens the area of choice available to the individual agent is desirable: the least that such an event can do is leave that agent as well off as before its occurrence, while potentially opening up some preferred alternative.[10] Unfortunately, it is not always possible to move from the case of the individual to a conclusion about what is desirable for society. Some changes, whose consequences we wish to assess in the real world, open up the area of choice available to all agents and, to the extent that they do so in the absence of an increase in the basic resource endowments of those agents, they can be said, unambiguously, to enhance *economic efficiency*. Other changes, however, open up areas of choice for some but curtail them for others. We cannot make judgments in such cases without comparing the gains and the losses of different individuals.[11] The critical point here, as both Osberg and Blomqvist remind us, is that comparisons of the economic welfare of individuals are matters of ethical judgment, not of scientific fact. Depending upon their ethical views, different observers may come to different conclusions about questions whose resolution depends upon the comparison of the welfare of individuals.

Distributional Equity as a Component of Well-Being

Though not logically dependent upon it, economics was intimately associated with utilitarianism during its early development, and it is not surprising that, even today, utilitarian ethics find much favour among economists. As Gordon (1980, pp. 21–41) shows, utilitarianism does not provide a complete guide to all problems of economic, let alone social, policy, but it is useful enough to merit the "two cheers" which Brittan (1983, Chap. 2) suggests we accord it. Osberg argues that ethical

utilitarianism requires us, as a matter of moral principle, to regard all individuals as having equal capacity for enjoyment and suffering, and to regard social welfare as being synonymous with the sum of individual welfare. If we combine this moral principle with the scientific hypothesis of *diminishing marginal utility* — the proposition that, for the individual, equal increments in income yield less and less extra satisfaction as income increases — we are led to rather egalitarian ethical views on distributional issues. At the very least, we are compelled to regard those changes which enhance the economic welfare of the poor at the expense of the rich as being superior to those which have the opposite effect, always provided that there is nothing to choose between them on other grounds.[12] Moreover, as both Osberg and Blomqvist note, utilitarianism has ample room for altruism as a motivating force. This consideration tends to reinforce ethical arguments in favour of measures that promote equality in the distribution of economic welfare among individuals.

Certain recent developments in social philosophy, and in particular those associated with the work of the philosopher John Rawls (1971), have it that a just society is one that pays particular attention to the economic welfare of its poorest members. In some versions, this argument goes so far as to argue that only its effects on the economic welfare of the poorest member of the society should be taken into account in assessing any measure. This extreme position is difficult to defend but, as Osberg argues, less extreme versions of it are more appealing, and still require us to pay particular attention to the outcome of any situation for the very poorest members of society. Indeed, this type of reasoning has recently resulted in a subtle shift of emphasis in discussions of distributional issues. We now seem to be less concerned with equality per se, and more concerned with the extent to which a society succeeds in providing a decent minimum living standard for its poorest members, than we once were.

All this amounts to saying that, provided we are willing to make ethical judgments, it is sometimes possible to assess the effects of events that have distributional consequences. Even more important, the same ethical principles that permit such judgments compel us to recognize that the distribution of economic welfare among individuals inherent in any particular economic environment is, in and of itself, an important element to be considered in judging its overall desirability. This is not to say that distributional equity is the only value worth considering, because its attainment might be costly in terms of other dimensions of economic (or indeed social) well-being, but it is to say that distributional elements require consideration when judgments about economic well-being are made; and given Osberg's conclusions concerning the compelling nature of certain aspects of Rawls' thought it is worth reiterating that the welfare of the poor should be given especially heavy weighting in this context.

Equity over Time

Economic activity takes place over time, and this fact raises three complicating questions about distributional issues. First, should we, in comparing the welfare of individuals take account only of their current circumstances or should we consider some measure of their average situations over their lifetimes? Here, both Osberg and Blomqvist are clear that it is lifetime considerations that ought to count. This conclusion has a good deal of intuitive appeal, and it is also consistent with the simple revealed preference approach to assessing changes in an individual's welfare invoked earlier. There is much evidence in the applied economics literature consistent with the view that individuals seek to maximize their welfare, as they perceive it, not just at each moment in isolation, but over their life cycles.[13] If individuals take a lifetime view of their own welfare, there is every reason why the outside observer should adopt the same stance.

Closely related to the above is a second consideration: economic life that takes place over time involves risk. The outcome of today's decisions can seldom if ever be foreseen with certainty. In judging people's economic welfare over some period, should we take our measurement at the beginning of that period, before the outcome of the events that will affect them, including those under their own control, is known; or should we instead be concerned with assessing the actual results of their activity observed at the end of the period? To put it another way, should we be concerned with equity in the opportunities which face agents, or in their outcomes? Osberg's discussion suggests that, to deal with this issue, it is helpful to concentrate explicitly on the role of risk because, in a riskless world, there would never arise a discrepancy between ex ante expected and ex post realized outcomes to any situation.

It is well known that economic agents dislike risk. Risk aversion, so-called, is an implication of the hypothesis of diminishing marginal utility of income already invoked above, and is well supported by empirical evidence. It can be argued, on revealed preference grounds once more, that ex ante equity should concern us, but that, in assessing it, we too, like the agents we are considering, should make due allowance for the presence of risk. The more certain is their economic environment, other things equal, the greater is the economic welfare of individuals, so the reduction of risk in economic life must be regarded as contributing to society's economic well-being. However, measures that reduce risk in economic life might well inhibit the achievement of other aspects of economic well-being, and the pursuit of certainty, like that of equity, must always be tempered by this consideration.

The third question that needs attention concerns whose economic welfare is to be taken into account when we assess a society's economic well-being. Because actions undertaken today have effects in the future on the welfare of people as yet unborn, it is difficult to resist the conclusion that the

welfare of future generations must be considered, as far as it is feasible to do so, when assessing current circumstances.[14] Moreover, although we are accustomed to the idea of discounting the future, to do so when the welfare of future generations is at stake raises a serious ethical problem. Why, when some decision is made, should the amount of weight attached to the welfare of the various individuals affected by it depend upon the accident of their dates of birth?

This is not to say that we should refrain from discounting future benefits arising from current decisions in any circumstances. If future generations are likely to be richer than the current generation, then the same combination of the principle of diminishing marginal utility and utilitarian ethics which we invoked as an argument in favour of equality earlier may be applied, and will tell us that future increments to society's wealth should be discounted. The reason for discounting them, however, is that they are increments to (what is expected to be) a higher level of welfare than currently prevails, not that they are going to occur in the future. As far as ethical considerations are concerned, Osberg's conclusion, that the welfare of future generations deserves equal weight with that of the current generation when we make judgments about a society's current well-being, is hard to resist.

Ambiguities in the Idea of Economic Well-Being

The economic well-being of any society is multifaceted, and it would be surprising indeed if there were any simple formula for the organization of economic life that would ensure that it is always maximized. Indeed, given the complex nature of economic well-being, it is a mistake to think in terms of its having some easily measured achievable maximum value about which everyone can agree. We might all accept that efficiency and distributional equity are desirable, while still disagreeing about how much weight to attach to these values. If we do disagree, it is easy, for example, to conceive of events which, because they increase (decrease) efficiency while decreasing (increasing) equity, will seem to some to have improved well-being and, to others, to have decreased it; and this is not to mention the possibility of disagreement about the nature of distributional equity.

Nevertheless, the fact that an unambiguous and universally acceptable standard of assessment is not always and everywhere available is no excuse for taking a nihilistic approach to the problem of judging the consequences of various changes for economic well-being. Some events might improve all of its facets simultaneously, and others cause all of them to deteriorate, and here there will be no debate. In other cases disagreement might arise about matters of fact — has this event improved efficiency or not? — and is potentially resolvable by rational argument. It is only in cases of genuine disagreement about values that such argument will not settle matters, but even (or perhaps particularly) in such cases, it is helpful to know just what is causing disagreement.[15]

The Market and Economic Well-Being

Efficiency and "Market Failure"

The virtue of the voluntary exchange of private property as a means of organizing activity intended to mitigate scarcity is that it prompts behaviour on the part of self-interested agents which contributes not only to their own welfare, but also to the welfare of others. Voluntary exchange thus tends to promote economic efficiency, but it is now clear that our original question about its adequacy as a means of generating economic well-being raises a number of other issues. Not only must we be concerned about whether market mechanisms are fully efficient means of organizing economic activity, but we must also ask about their capacity for promoting other components of economic well-being. We shall discuss these issues one at a time, asking in turn about the capacity of market mechanisms to promote efficiency, to reduce risk, to take account of the welfare of future generations, and to generate equity.

Since voluntary exchange cannot take place unless both parties to it gain, it is hard to see how it can fail to generate efficiency, and yet there are problems here. The key to understanding what is often called (though as we shall see, misleadingly) "market failure" lies in two ideas that have already made appearances in our earlier discussion. When discussing the efficiency of voluntary exchange, we were careful to deal with bilateral exchanges *which did not impinge upon third parties*, and we did so because, as Schworm's paper makes particularly clear, a certain class of third party effects, technically known as externalities, have important implications for the efficiency of markets. So too have the conceptually closely related free rider problems associated with public goods, which we have also already encountered.

It is a characteristic of *homo oeconomicus* that he will carry on any activity as long as the net gains to him of doing so are positive, and will cease when they become zero. Thus production and trade will be carried on up to levels at which the gains to all parties directly involved are exhausted. But what if some activity generates losses — negative externalities as they are called — for third parties not directly involved in it? If arrangements existed that made it possible, such third parties would wish to impose a charge which would both compensate them for their inconvenience and induce a reduction in the activities causing the problem. In the absence of such arrangements, the activities in question will be carried on to excess, and the resources devoted to them will not be used to maximum efficiency. Third party effects can be positive as well as negative of course, and, in that case, *mutatis mutandis* the foregoing argument still holds.

There is no need to go into great detail here about the many ways in which such type of problems arise in the real world. Schworm's paper shows that what we commonly refer to as "pollution" problems are in

fact negative externalities of the type to which we refer here, and they are just one example of a phenomenon that the reader will recognize as being ubiquitous. Nevertheless, pervasive though they may be, it was only rather recently, with the publication of Ronald Coase's profound essay "On the Problem of Social Cost" (1960), that economists came to understand fully the essential nature of externalities.[16] They arise from what we may term incompleteness in the assignment of property rights. Since exchange cannot take place in the absence of property rights, what is usually called a failure of markets would better be called an absence of markets.

Property Rights and Regulation

Though scarcity is a fact of human existence, it does not manifest itself in the same way in all times and places. Not every resource that is capable of satisfying human wants is always and everywhere scarce. Fresh air and clean water have always been needed to satisfy wants, but in many times and places they have been available in such abundance, relative to the demands that could be placed upon them, that they have been not scarce but free. There is no point in establishing property rights in a free resource because its allocation presents no problem; but, as Harley in particular stresses, economies evolve over time, technologies change, and so do relationships among the availability of resources and the demands placed upon them. Free resources sometimes become scarce as a result of such processes. For example, much of the story of North American agricultural development in the second half of the 19th century involved, as Harley shows, free land becoming scarce. Such a transition from abundance to scarcity creates problems, often quite acute ones, because the onset of scarcity typically precedes the creation of property rights. In the interim period, the newly scarce resource is overused. The "pollution" of air and water which currently causes us so much concern is, as Schworm argues, from the perspective of economics, a manifestation of such overuse.

The case in which no property rights at all exist in a scarce resource is an extreme one. In the case of western land in 19th century United States, Harley shows that the federal government did put in place, in the shape of the Homestead Act, a mechanism for distributing such rights. However, the rights thus created and distributed were incomplete, with the original recipients of small tracts of land being forbidden to resell them to others wishing to assemble land in larger tracts. In the case of arable land such restrictions did not matter, but in the case of land more suitable for grazing, or endowed with oil deposits, they mattered very much. In such instances, agents operating on a smaller than technically optimal scale imposed external costs upon one another, which would have been avoided had the original assignment of property rights included the right to resell land to the highest bidder so that larger tracts could have been assembled.

One must be careful about the lessons to be learned from the foregoing examples. In particular it is not appropriate to infer that, wherever an "externality" appears, a correct and straightforward solution is to rely on the political or legal system to create a new set of property rights and then leave it to voluntary exchange to solve the problem of using scarce resources efficiently.[17] To begin with, the precise design and initial distribution of those rights must present a complex legal and political problem in any real world situation as Scott (1983) has stressed. Even assuming that such problems can be overcome, creating property rights of the appropriate kind is not always a feasible solution to an externality problem. It might be sometimes, as with the examples cited in Harley's paper, and perhaps to a limited degree in the case of water resources, as Schworm argues, but how might one set about establishing and distributing enforceable individual rights to property in fresh air? Besides, as Schworm points out, scarce resources can be allocated in other ways — by direct controls for example, or by influencing behaviour through the taxation and subsidization of specific activities. In some cases, it might be cheaper and more effective to resort to such "non-market" approaches to achieving efficiency, and there is nothing that can be said here by way of generalization. Each case needs to be assessed on its merits.[18]

It is worth noting that non-market devices for coping with such problems are available to private sector entities as well as to governmental agencies, and are much used by them. The owners of condominium dwellings, for example, have considerable scope for imposing external costs on one another. They can hold noisy parties, paint their exterior woodwork in colours that clash with those used by their neighbours, and so on. Such agents do not, usually, establish a set of markets in which they may trade rights to hold parties, or to adopt particular colour schemes. Instead, they set up a management committee empowered to make and enforce rules about these things. A moment's thought will convince the reader that such non-market solutions to resource allocation problems are quite common in the private sector of any modern economy, and their existence should warn us that the borderline between market and non-market means of coping with scarcity is not necessarily the same as that between private and governmental activity, a point which, as we shall see below, Bish stresses in another context.[19]

Public Goods

It was remarked above that problems posed by public goods are closely related to those raised by externalities, and it should now be clear to the reader why this is the case. The legal system provides, by its very existence, benefits for all members of society and requires real resources for its provision and maintenance, yet its providers cannot obtain those resources from its beneficiaries in voluntary exchange for the benefits it creates. Here

too there is not so much a market failure as the absence of a market. And of course the legal system is not the only public good. The monetary system, public health, national defence, and so on have the same characteristics of providing, at an unavoidable resource cost, valuable services which individual agents who are members of the community cannot be prevented from enjoying. Moreover, the inherent indivisibility of public goods means that individuals cannot pick and choose the amounts and types of them they enjoy. All members of a given community must somehow be induced to acquiesce to consuming the services of the same legal system, the same monetary system, the same public health services, and so on.

As with externalities, so there is no one "right way" of dealing with the problem of providing the appropriate amount of "public goods" and, as with externalities, the specific form that the problem takes may change over time. Technical change can create public goods, as it did in the case of radio or television signals, and it can also turn a public good into one that can be privately traded, as has happened as a result of the development of those techniques which have made pay-TV a feasible operation. In some cases — for example national defence or the legal system — tax-financed public provision seems an appropriate means of efficiently supplying public goods, although this still leaves open the political problem of agreeing on the precise form that the good in question might take. In other cases, private voluntary behaviour might suffice, as in the provision of public monuments by private corporations, or the raising of funds by privately initiated drives. Here, however, the "free rider" problem suggests that such items will be underprovided if their supply is left solely to the private sector. Even more important, the private provision of public goods, because of their indivisibility, opens up serious ethical problems concerned with the extent to which private donors should be permitted to impose their own tastes on the community at large.

General Lessons for Efficiency

The general lessons to be drawn from the foregoing discussion are easily enough set out. Even if economic efficiency were the only meaningful component of economic well-being, there could be no presumption that an economic system based on the voluntary exchange of private property would be able to attain theoretically feasible maximum levels of welfare. Whenever externalities occur, particular goods and services will be over- or under-provided relative to some theoretically ideal amount, and it is possible that some form of state intervention may enhance economic efficiency.

The insight that such effects arise from incompleteness in the structure of property rights and markets is helpful in enabling us to understand the

problems with which we are dealing, but it does not imply that the correct solution to those problems always and everywhere involves state intervention to create such rights and markets in them. Sometimes it does, but it may not always be feasible to adopt such a solution. As Schworm argues, it is costly to set up and maintain market mechanisms, and in some instances the cost may be prohibitive. In such cases some kind of regulatory solution could well be both appropriate, and cheaper. Sometimes it might be put in place by private agreement among the parties affected (as in the condominium example given above) and sometimes it must be imposed by government, preferably of course with the consent of the governed; although, in the case of indivisible public goods, to obtain such consent will often present difficult political problems. There is no general solution that will suit all cases.

An important caveat must be raised at this point, which will be dealt with at greater length below. The fact that markets sometimes deliver an outcome inferior to what could be achieved by an ideal regulatory mechanism does not constitute a general argument against market solutions, because we cannot take it for granted that regulators will always in fact adopt the best solution open to them. In the matter of the pursuit of economic efficiency, the best can indeed be the enemy of the good, to invoke a well worn, but in this case quite appropriate, cliché. Market mechanisms fail when the incentives they give to the agents working within them are inappropriate, but this is true of any mechanism for organizing economic activity, including regulatory and political ones.

Coping with Risk

When it comes to problems associated with risk reduction, the verdict on market mechanisms must be much the same as it is in the matter of promoting efficiency: namely that, though such mechanisms work well enough in a wide variety of circumstances, it is not difficult to identify cases in which their performance falls short of some theoretical ideal. In any conceivable world, all individuals face small and unavoidable probabilities of suffering losses from fires, accidents, illness, etc. However, because the risks in question are essentially independent across agents, they are insurable. It is feasible for an agency of some sort, for a fee, to assume any losses which they might impose on individuals, and to calculate, with an extremely high degree of probability (which approaches certainty as the number of individual independent risks assumed grows larger and larger), the payouts which it will be called upon to make over any period. The fees to be charged for assuming various risks can be set so as to cover losses, and the agency in question can be sure of customers, because individual agents, not liking risk, are willing to pay something to avoid it. The agency in question could be a government department, to be sure, but quite obviously it could also be a private insurance industry. That is

to say, there is no reason to doubt the efficacy of market mechanisms in mitigating the effects of insurable risks on the welfare of individuals.

Many of the risks that individuals face arise from lack of knowledge. The future outcome of current decisions is always risky, but not all of the risk involved is inherently unavoidable. In many cases extra knowledge of the processes at work in a situation can make its outcome more certain for the agents involved. To the extent that knowledge may be created by devoting real resources to its acquisition, it is a scarce good like any other. However, it may also be a public good if, once created, there is no way for its creator to market his knowledge so as to capture for himself payments for the benefits which it brings with it. In such a case, market mechanisms will lead to insufficient resources being devoted to the creation of knowledge, and hence will leave individuals facing more risk than ideally they should.

Quite apart from this consideration, some risks that cannot be reduced by the acquisition of knowledge are uninsurable. Some adverse circumstances, if they occur, affect many agents at the same time and in the same way, and the vital precondition for insurability, namely a high degree of independence among the individual risks, does not hold. A private insurer, for example, would be unlikely to offer coverage against a downturn in the demand for housing to employees of the lumber industry.[20] More generally, the business cycle affects employment prospects over such a wide range of occupations that it is hard to see how the private sector would ever provide comprehensive coverage against unemployment (though it can and does provide coverage against unemployment arising from certain specific factors, such as disability caused by accident or illness). Here, as Blomqvist notes, many would argue that there is a case for government intervention to mitigate risk, either in the form of the provision of unemployment insurance, and/or in the form of other policies designed to smooth out the cycle and its effects on individuals.

One particular type of uninsurable risk merits particular attention, namely that associated with events that occur so irregularly as to provide no experience upon which an insurance company could make the actual calculations necessary to set premiums. Such risk, which some economists, following Frank Knight (1921), call "uncertainty" is ubiquitous in economic life. As Conklin in particular reminds his readers, a fundamental aspect of coping with scarcity involves the search for new and better ways to use resources. Such activity can involve basic scientific research, or it can involve much more mundane activities like reorganizing the provision of existing services. It can and does encompass everything from the development of the transistor to the introduction of franchising in the fast food industry.

A common and crucial element in these disparate activities is that the rewards they generate are not risky in the insurable sense, but uncertain. Conklin argues persuasively that market mechanisms are in certain ways

well adapted to dealing with the problems associated with such endeavours. In the world we live in, individuals come with a variety of skills and tastes, and market mechanisms permit those who are both adept at innovation and indifferent to uncertainty (or who perhaps actively enjoy facing it) to specialize in "entrepreneurial" activity from which other members of society benefit without incurring the costs of taking chances on their own behalf. At the same time, market mechanisms permit individual agents to devote only their own resources, or those which they can borrow from willing lenders, to endeavours with uncertain outcomes. Hence they provide a built-in check against losing propositions being carried too far.

There are problems here, though. Certain activities of the type which Conklin discusses yield high payoffs which immediately become public property. Rewards for having generated those payoffs cannot be captured by the individuals who did so. The benefits arising from advances in scientific knowledge provide an example here: once created, knowledge quickly becomes public property when it is applied. The reader will recognize that we are here facing an externality problem; and the existence of such a problem implies that market mechanisms will fall short of perfection in their operation, inasmuch as too few resources are devoted to the activities in question. The creation of property rights in patents is best understood as a response to this type of difficulty, as is the legal protection accorded to trade secrets in those cases where the filing of sufficient information to secure a patent would render the innovation in question vulnerable to imitations that cannot be ruled out by that patent.

Providing for the Future

Innovative activity is important among the mechanisms whereby, at any time, the current generation makes provision for its successors. Even a finite-lived version of *homo oeconomicus* who has no concern for his own descendants can be induced to make provision for future generations by market mechanisms, though he has, by definition, no direct interest in doing so. The critical point here, as Harley points out, is that, in a market economy, it is possible to trade, not just in currently produced goods and services, but also in claims to future flows of such goods and services. It is, that is to say, the capital market which enables a system based upon voluntary exchange of private property to provide for the welfare of future generations. The owner of a renewable, but potentially depletable, resource such as fertile land, and the entrepreneur who has built up a successful business, each have an incentive to ensure that their assets will continue to exist beyond the end of their own lifetimes, if for no other reason than that the capital market enables them to sell a claim to the future income their assets will generate, and to consume the proceeds of such sales before their deaths.[21]

Even though, as Osberg argues, people do in practice show themselves to be concerned with the welfare of future generations, one does not need to attribute altruism and "bequest motives" to them in order to argue the case that market mechanisms function effectively in providing for the future. This is an important point, because it implies, Harley argues with great persuasiveness, that widely held and long-standing fears about the incapacity of such mechanisms to deal with the particular problems inherent in the depletion of exhaustible resources, or the overuse of renewable resources, are largely without foundation. Nevertheless, one must agree with Osberg that ethical questions, inherent in making any intergenerational welfare comparison, render it difficult to pronounce upon the optimality of the provisions which market mechanisms induce for future generations.

The Market and Distributional Equity

Important difficulties with relying on market mechanisms to cope with scarcity arise when we consider the distributional aspects of society's economic well-being. Our original intuitive example of voluntary bilateral exchange as a means of enhancing economic efficiency reveals the central problem. Given initial endowments of scarce resources, self-interested individuals trade with one another and all gain. Some philosophers, such as for example Robert Nozick (1974) argue that there is a sense in which, *given the justice of initial endowments*, the distribution of welfare among such individuals, when trade has finished, must also be regarded as just. No-one, after all, obtains anything in voluntary exchange without the consent of those with whom he is trading.[22]

The argument here is a little glib, as Gordon (1980, pp. 89–93) notes. People do sometimes enter into voluntary agreements only to find that they have been cheated, or to find that the expectations which everyone involved honestly held at the time of trading were false, but even setting these doubts aside, there is still the question of the justice of initial endowments. Here economic analysis of market mechanisms has nothing to say. This question is for ethics, and ethics may (not must) tell us that a particular distribution of initial endowments which obtains in the world is unjust. If it is, there is no reason to suppose that voluntary exchange will do anything to remove the injustice in question. Even if we allow that *homo sapiens* is sometimes motivated by altruism, while *homo oeconomicus* is not, we cannot escape this conclusion. As Blomqvist tells us, to rely upon voluntary charity to redistribute wealth and income is to ignore a potentially important free rider problem. We might each feel better off if we saw the poor made richer as a result of charity, but our own voluntary donation would have, at most, a small effect on this outcome. Charitable donations are costly to individual donors, but yield them only a small benefit directly attributable to their own donations. Any but

totally altruistic agents thus have every motive to make their charitable donations too small.

If the pursuit of equality, or at least of a decent minimum level of well-being for the poor, is important, there is a clear case for according to our embryo state powers over income and wealth distribution. Indeed, when we showed that a state with powers to coerce taxes was a necessary prerequisite for market mechanisms to function, we essentially conceded this point, because an agency which needs to raise taxes cannot avoid facing questions about the principles that should underlie its exercise of those powers. Nevertheless, this conclusion does not mean that any kind of redistributive mechanism can be defended. The arguments we have presented so far in this paper suggest that, to begin with, inequality that results from imbalances in initial endowments might be an important target of redistribution, and they also suggest that redistribution should be in a generally downward direction. Finally, we must once again warn against the single-minded pursuit of one dimension of economic well-being to the neglect of others. As we shall see in due course, there is an important potential for conflict between the pursuit of equality on the one hand and efficiency on the other, which merits careful attention in any discussion of policy toward income redistribution.

The State and Economic Well-Being: The Traditional View

The Growth of Government

Economic analysis suggests that the outcome for economic well-being of activity based on voluntary exchange leaves considerable room for improvement when comparisons are made with some theoretically ideal standard. Many of the arguments to this effect presented earlier have been well understood for fifty years or more. It is hardly surprising that they have found their way into the political arena, and have had considerable influence there, an influence to which the extraordinary recent growth of the role of government in the economic life of nations, not least of Canada, must be partially attributed. Of course, as the reader of Usher's paper will soon see, by no means all growth of government has come about as a response to economists' concerns with the failure of market mechanisms to achieve the goals discussed earlier in this paper. There have been other factors at work.

The macroeconomic instability experienced by Western economies in the inter-war years was widely interpreted at the time as a symptom of deep-rooted flaws in capitalism, separate and distinct from the issues under consideration in this essay. Although many would now accept the view that the instability in question was in fact the result of inappropriate policy acts, this older interpretation still has many adherents.[23] Moreover,

whether this interpretation is right or wrong does not alter the fact that it provided an impetus toward the policy implementation of "Keynesian" macroeconomics, a development which gave a considerable boost both to the level of direct government involvement in economic life, and to public acceptance of that involvement.[24] Moreover, the influence of two world wars and subsequent international tension on the growth of government economic activity should not be overlooked; nor should the role of self-interest, pursued through political and bureaucratic processes, which will be discussed in the next section of this paper.

Nevertheless, the basic notions that market mechanisms do not always generate maximum economic efficiency, do not always cope adequately with risk, do not always take sufficient account of the interests of future generations, and above all do not address the problem of equality, have played a powerful role in driving the growth of government, and in determining the directions which that growth has taken. Arguments about efficiency and providing for the future provide intellectual bases for all manner of industrial and environmental policies, while the mitigation of risk and the reduction of inequality are, as Blomqvist, as well as Blais and McCallum argue, much cited objectives of that rather loose-knit set of programs to which we refer as the "welfare state." All this raises two sets of questions. The first concerns how these goals can be achieved, and whether they can be pursued simultaneously; and the second concerns whether political and bureaucratic processes are such that policy will in fact be well adapted to the pursuit of these goals rather than other, perhaps less worthy, ends. We shall deal only with the first of these sets of issues in this section, reserving discussion of the second to the following one.

Promoting Efficiency

We have seen earlier that, where private property rights and markets in scarce resources are absent, the market economy will not in general operate at maximum efficiency in generating current output, nor will it do as well as it might in mitigating risk and providing for future generations. There is, in principle, ample scope for state intervention to achieve these ends, and it is a simple matter to set out the general principles, described in more detail by Schworm, which should underlie such intervention. Wherever there exists a flaw in the market mechanism which cannot be repaired by the establishment of property rights, and which leads to the benefit to society of some activity exceeding the benefit that accrues to those directly involved, there is a case for introducing a subsidy that will increase its scale; where costs to society exceed private costs, there is a case for a tax; and, for public goods, there is a case for the state at least to articulate demand on behalf of the population, and at most to enter directly into the production of the good in question.

Moreover, the size of the tax or subsidy in question is also in principle determinate. It should be just sufficient to remove the discrepancy between marginal social and marginal private costs which leads to inefficiency in the first place. In the case of a public good, the scale of its provision should be such as to equate marginal social costs with marginal social benefits. Where, for some reason, it is not feasible to use taxes and subsidies, direct regulations can be designed that will achieve the same ends.[25]

Here, as in so many other cases, matters that are simple in principle can be difficult indeed in practice. The measurement of social costs and benefits in particular times and places often presents thorny problems. Nevertheless, the whole apparatus of cost-benefit analysis, as it has evolved over the past half century or more, is available to the policy maker who wishes to apply it in any particular instance; and though it would be unrealistic to claim that the practical solutions offered by cost-benefit techniques are anything like theoretically perfect, it would be at least as unrealistic to claim that they are unhelpful. Such techniques can be, and frequently have been, usefully employed in the design of policies designed to promote economic efficiency.[26]

Efficiency Versus Distributional Equity

As has been remarked earlier, the various components we have identified as contributing to economic well-being sometimes compete with one another, and the competition is probably most acute in the cases of efficiency and distributional equity. One must be careful about making blanket generalizations here though. For example, in areas like the provision of public health services and primary and secondary education, programs designed to enhance efficiency may also contribute to equity. Moreover, poverty itself generates social tensions, and to the extent that these in turn lead to the poor engaging in crime, resources must be devoted to police, court, and correctional services. Redistribution of income to the poor might reduce crime, and in thus releasing resources from the provision of police, court, and correctional services for other uses might promote efficiency.[27] Even so, the possibility that in some instances, efficiency and equity may be pursued jointly does not alter the fact that they are frequently in conflict, nor, more importantly, should it obscure the fact that each of them is a desirable social goal in its own right.

Much of the difficulty here arises because, although it is often some ex ante form of distributional equity based on initial endowments that we wish to promote, the actual measures upon which we usually base redistributive policies derive from data on income distributions. These tell us, roughly speaking, about the welfare available to individuals after they have devoted their resource endowments to productive activity. Moreover, taxes levied on income give taxpayers considerable incentives to alter their behaviour in ways that not only reduce their tax burdens but also the

economy's efficiency. This is a pervasive theme of the discussion of tax reform by Boadway and Bruce. Arguments that the taxation of income reduces the economy's overall labour supply by a significant amount, such as are often found in vulgar expositions of so-called "supply side economics," should not be overstated. Available empirical evidence suggests that decisions about how time is allocated between work and leisure are not overall very sensitive to variations in net real wage rates, and hence in tax rates.[28] Although overall labour supply effects are big enough to matter here in their own right, distortions caused by income taxation also arise from more subtle responses. As Boadway and Bruce argue, the distortions become more acute the narrower is the definition of income upon which taxes are levied and the higher and more progressive is the tax rate imposed.

First, and obviously, high marginal income tax rates imply strong incentives toward illegal tax evasion, and legal tax avoidance. Both activities directly consume real resources in an inefficient manner, and typically involve a rearrangement of agents' market activities in inefficient ways as well. Moreover, high taxes on realized income appear to discriminate against agents who engage in risky activities, since they are expected not only to bear their own losses but to share their gains with government. Some commentators see an important potential conflict between the pursuit of equity and the provision of an environment in which individual agents are willing to undertake the risky entrepreneurial activity so essential to the promotion of economic growth.

The conflict here seems particularly apparent in the context of an income tax system that levies taxes on high incomes at high marginal rates and provides, as Boadway and Bruce note, much of the impetus behind proposals to introduce "flat rate" income tax measures. However, as they also note, to the extent that the same agent engages in a number of risky activities, the ability to deduct losses of unsuccessful endeavours from income earned in successful ones means that government does share losses as well as gains. Moreover, it is worth recalling Osberg's arguments to the effect that the alleviation of poverty is a much more important element in the promotion of that complicated social goal which we call distributional equity than is the reduction of high incomes. High marginal tax rates on very high incomes do not, as a matter of fact, yield very much revenue, and so are not a significant source of funds for the alleviation of poverty. If marginal tax rates do not rise steeply with income, their potentially deleterious effect on risk taking is reduced, but the tax system's revenue-generating capacity is scarcely affected. Thus, the conflict between efficiency and equity is not, perhaps, as acute in this instance as first impressions might suggest.

This, however, should not be taken to mean that, in more general terms, serious efficiency problems do not exist here. Recent work, to which Usher and Boadway and Bruce refer, suggests that the efficiency costs associated

with levying taxes, and particularly income taxes, rise very rapidly with tax rates, and are very high in the ranges currently in place in Canada and elsewhere. Such work estimates that economic efficiency might decline by as much as 50 cents' worth or more of output for every extra dollar of revenue raised, so that, for every dollar reduction in taxes levied, private sector income might benefit by up to $1.50. Here it is also worth recalling Usher's reminder, echoed by Blomqvist, that income redistribution schemes as they now exist often have high administrative costs, costs which are incurred over and above the efficiency costs already mentioned; and this is not to mention the costs of "rent seeking" behaviour, discussed briefly below, and in more detail by Usher. Indeed, Usher goes so far as to suggest that the true marginal cost of one dollar of government revenue is between two and three dollars of private sector income, an estimate that some observers might regard as representing an upper bound, rather than a most likely value, for the cost in question.

Reducing the Efficiency Costs of Taxation

All taxes have efficiency costs, and all redistributive schemes need administering, but the implication of this is not that the pursuit of equity through a tax-transfer system should be abandoned as inevitably too expensive. As Boadway and Bruce tell us, economics does yield some general lessons about how the costs in question can be reduced, lessons which have considerable intuitive appeal. To begin with, the broader the base upon which taxes are levied, the lower will be their efficiency costs, for the simple reason that a broader tax base gives less incentive to agents to divert their efforts toward generating income in non-taxable form. Furthermore, it is obvious that a broader base permits the same amount of revenue to be raised with lower tax rates, but lower tax rates in turn make their own contribution to reducing efficiency losses.

It should once again be noted explicitly that, unless one is an egalitarian who attaches value per se to reducing the incomes of the very rich, schemes designed to broaden the tax base and lower tax rates need not impinge heavily upon the pursuit of equity, since there is no reason to suppose that the revenue available for distribution to the poor need be reduced by such reforms. Moreover, because base broadening and rate reduction also contribute to administrative simplification, they reduce both administrative costs for the authorities and compliance costs for taxpayers too. Such considerations, as St-Hilaire and Whalley argue, have become more important in debates about tax reform in recent years.

One important exception to the general principle that the broader the tax base, the better, emerges from the paper by Boadway and Bruce and concerns the tax treatment of income that is saved. Under a broadly based income tax, saving is made out of post-tax income, and the income subsequently yielded by it is then subjected once more to tax. A broadly based

income tax therefore discourages capital accumulation, and discriminates against the future generations whose welfare ought to be taken account of in a reasonable measure of current economic well-being. The distortion here seems to be a serious one and the solution, as the authors tell their readers, is to levy taxes on expenditure rather than on income. Canadian practice already conforms to this principle to a significant degree, not only as a result of the generous provision which income tax regulations make for the deductibility of retirement savings contributions of one sort or another, but also because of the importance of indirect taxes as a source of revenue both at the federal and provincial levels.

The fact that expenditure taxation does not discriminate against saving is not its only advantage. We have stressed earlier that there are strong arguments for taking a lifetime view of an agent's income when assessing his well-being. Both economic theory and a good deal of empirical evidence suggest that agents "iron out" fluctuations in their year-by-year income stream in making consumption expenditure decisions, so that such expenditures are a much better indicator of long-run capacity to pay taxes than are observations of annual income. Moreover, to the extent that it is equity in initial endowments, rather than in realized incomes, that we are seeking to promote, expenditure taxation is also helpful because the ironing out process involves agents in gearing their current expenditures to some kind of average of their expected future income streams, which in turn is related to initial endowments of wealth. Expenditure taxation is also potentially simpler to administer than income taxation. Boadway and Bruce argue persuasively that many of the most difficult conceptual and administrative problems with Canada's current tax system arise in the context of income yielded by capital which accrues but is not realized. Such income ought to be taxed if income is indeed the tax base, but it would be exempted automatically from taxation under an expenditure tax. In the light of St-Hilaire and Whalley's comments on the desirability of simplifying the tax system, expenditure comes to appear to be an even more desirable tax base.

There are, as Boadway and Bruce tell us, difficulties with expenditure taxation. To the extent that it uses indirect, rather than direct, taxes as a means of collecting revenue, it appears to be less progressive, although this problem can in fact be dealt with by adjusting the rates at which the direct component of the tax is levied. Also, though much of the apparently high saving carried out by the "rich" is in fact an illusion, caused by the fact that people with fluctuating incomes tend to save a lot at times when their incomes are temporarily above average, not all of the phenomenon can be explained in this way. Rightly or wrongly, therefore, expenditure taxation is inevitably regarded as "less fair" than income taxation by those with egalitarian views and hence faces real political difficulties. Considerations such as this go a long way to explaining why the Canadian tax system contains a strong residual element of income taxation for the rich, built

in by the existence of upper bounds on the amount of tax-free retirement savings that can be made in any year.[29]

The Welfare State

The generation of tax revenue is only one side of the redistributive process. On the other side, subsidies must be paid out; and, because such subsidies are in essence negative taxes, it is no surprise that they too give rise to efficiency problems. Even if the only criterion for the receipt of a redistributive subsidy were the poverty of the recipient, such efficiency costs would occur; because to the extent that they alter the relative price of leisure to their recipients there must be a general presumption that their existence distorts the work-leisure choice in the direction of leisure. The effect here will be particularly marked among those whose skills do not command high market prices. Such costs as these, however, are of exactly the same kind as those which arise from the operation of any income or expenditure tax structure, no matter how broadly based, and like them are an inevitable price that must be paid for pursuing distributional equity as an economic goal. Moreover, if the pursuit of this and other welfare state goals imposes costs, it also brings benefits. Blais and McCallum argue that welfare state programs promote social cohesion which is not only desirable in its own right, but in addition has a positive effect on economic growth. They also provide empirical evidence that is consistent with this claim.

Much more worrisome than general efficiency problems, as Blomqvist argues, are the costs associated with the fact that the "welfare state," as we know it, redistributes income not simply to the poor, but to a wide spectrum of individuals, and hence is inefficient in achieving its fundamental goals. Not all beneficiaries of the Canadian welfare state are poor by any means, or are the victims of risky circumstances that have turned out badly for them. For instance, we provide generous subsidies to the recipients of higher education, the vast majority of whom come from secure middle- and upper-income families, and to the consumers of artistic output who are also, on average, far from being in poverty. But even where programs tend to compensate losers and redistribute income in a downward direction, as unemployment insurance, health care, old age security, and various child support programs probably do, the criteria used to decide eligibility for aid ensure not only that different "causes" of poverty lead to different levels of relief, but also that many who are far from poor benefit from such aid, which is far more difficult to defend.

This characteristic of the welfare state builds incentives into its structure that are in many respects akin to those which occur in the context of taxation structures which treat income differently depending upon its source. Just as, under such tax schemes, it pays to have one's income take forms that attract relatively low tax rates, so, under piecemeal redistributive

programs such as now exist in Canada, does it pay to acquire those characteristics which attract higher subsidy rates, or at least to devote less attention to avoiding them than might otherwise be the case.

It would not be appropriate for so general a paper as this one to engage in detailed discussions of the baleful influence of the current piecemeal structure of the Canadian welfare state on the pursuit of economic efficiency. It is appropriate, however, to note one general implication of the foregoing discussion: namely that, to the extent that the mitigation of risk and the alleviation of poverty are the major aims of the system, these aims can be achieved more efficiently than they are at present. Where risk reduction is the goal, state provisions of insurance at actuarially fair rates is required. Thus unemployment insurance premiums might be experience rated by industry, health insurance premiums might be varied with certain lifestyle factors such as tobacco or alcohol consumption, and so on. Where the reduction of poverty is the goal, a system that uses some income measure as an important criterion whereby individuals are classified as either eligible or not eligible to receive benefits seems attractive. As Blomqvist notes, the latter proposal can trigger strong reactions among those who recall the harshness with which "means tested" welfare programs were administered before World War II; but, as he also notes, nowadays a simple process of "income testing" could be administered easily and anonymously within the income tax system.

Risk reduction and the relief of poverty are not the only aims of the welfare state. Many would argue that, in Canada, important non-economic values having to do with the promotion of national identity in a diverse and fragmented society are served by such universal programs as family allowances, old age security payments and unemployment insurance. If the effectiveness of these programs in promoting such values is judged to be high, it would not be reasonable to limit the distribution of their benefits only to the poor. In such cases, the appropriate solution to the large costs generated by them is to distribute their benefits on a universal basis, as at present, but then to use the income tax system to retrieve at premium rates (perhaps rising to 100 percent) the extra income that they generate for better-off families. This would involve shifting the Canadian tax system further toward a family income (or expenditure) base than it is at present, but to the extent that elements of such a family income base already exist in the administration of the child tax credit, and in the tax treatment of family allowances and interest from eligible Canadian sources, this would not involve a radical overhaul of the system.[30]

The use of the income tax system to "claw back" benefits conferred on the rich by universal welfare-state programs has wide potential. To cite another example, the redistributive effects of the current means used to provide post-secondary, and particularly university, education in Canada are unambiguously regressive. The case for treating the benefits that such education confers on higher income families as taxable income

is well worth considering. On the other hand the provision of publicly funded primary and secondary education in Canada probably, on balance, redistributes income downward, and the case for this program has much more to do with providing equality of (not just economic but also social) opportunities to young people, and helping to create a sense of common citizenship among them than it has with redistributive goals. The case for providing such education on a universal basis is therefore strong, but it would nevertheless be feasible to treat the value of primary and secondary education received as a benefit, taxable on a family basis, for the better off.

In the current climate of public opinion, it is doubtful that there would be too much support for such a claw-back proposal in the case of primary and secondary education, and another equally popular program is publicly funded health care. Here, as Blomqvist mentions in his essay, and has argued at much greater length elsewhere, there is a strong case for having government provide insurance services which the private sector for a variety of reasons finds it hard to supply.[31] Once again, though, it would be technically feasible to treat some fraction of the value of medical care received by better-off families as a taxable benefit. Such a scheme has been advocated by Reuber (1980, chap. 8) as a means of introducing ''deterrent fees'' into the health care system without levying them upon the genuinely poor. Though proposals such as this are not, at the moment, popular, anyone who is concerned both to maintain the welfare state in place, and to limit the demands which it makes on society's scarce resources, should give them serious, and dispassionate, thought.

We are here discussing practices that would involve the use not of an ex ante income test but an ex post income tax claw back to *supplement*, rather than *replace*, other criteria for the receipt of various benefits. We are not, therefore, discussing a fully fledged ''negative income tax'' scheme in disguise. The latter would make income the only criterion for the receipt of a generalized cash benefit, which would replace the current array of specific social programs, and suffers from certain disadvantages. To the extent that such a scheme involves, as it must, some kind of minimum income guarantee it provides strong incentives for low-productivity workers to leave the labour force and become dependent upon the state (although it must be admitted that current welfare programs have similar incentives built into them). To the extent that the system was designed to preserve work incentives among this group, by allowing them to retain a substantial fraction of earnings above the guaranteed minimum income level it becomes, as Boadway and Bruce show, more expensive, requiring high tax rates to be levied on the general population if it is to be financed, thus creating efficiency losses which, as Blomqvist argues, are likely to be high.

Though the negative income tax has much intellectual appeal because of its simplicity, it founders as a practical proposal not only because of adverse effects on efficiency but also because, in treating income as the

only criterion for the receipt of relief, it ignores the fact, stressed by Gordon (1980), that different groups in society — the old, the ill, the permanently handicapped, etc. — do in fact have different economic needs. The less tidy system of making specific benefits available to particular groups, and then clawing them back from the better off through the income tax, seems to be a more practical way of achieving the distributional goals of the welfare state at an acceptable efficiency cost. It is also potentially a very flexible system for dealing with diverse needs, because, as has already emerged from the above discussion, there is no necessity to apply claw backs to every program. Each one can be assessed separately and treated on its own merits. Whether programs would in fact be treated on their merits, rather than on the basis of the political influence of their beneficiaries, however, is another question.

Concluding Comment

We must give generally optimistic answers to the first of the two sets of questions which were raised at the outset of this section. There is scope for deploying economic policy with a view to improving the performance of market mechanisms; and as far as technical economic matters are concerned, the principles that ought to underlie such policy initiatives are well understood. As to the second set of questions, about the feasibility of applying these principles to economic policy making, we are not so optimistic. It is one thing to say that government in the abstract can act to promote economic efficiency and distributional equity, and quite another to say that any actual real world government will in fact systematically pursue such worthy ends.

State Intervention in Practice

Self-Interest and the Policy Process

The most obvious, and utterly valid, reason for pessimism about state intervention in economic activity lies in actual experience. St-Hilaire and Whalley's paper on the process of tax reform, when read in conjunction with the discussion in Boadway and Bruce of the principles that should underpin such reform, provides a vivid example of the almost total lack of connection between theoretical arguments for state intervention in economic life and the actual forms that such intervention so often takes in the real world. Blomqvist, Montmarquette, and Usher comment extensively upon this phenomenon too. A moment's reflection will bring to mind examples of policies that seem quite unrelated to the creation of efficiency or the pursuit of distributional equity in Canadian economic life: the imposition of quotas on the importation of Japanese automobiles; the provision of postal service by a Crown corporation vested with important

monopoly power; the reservation to those holding medical degrees of the legal right to provide a whole range of services which could well be performed by nurses or other paramedical personnel; and so on.

We cannot blame the widespread failure of state intervention in economic life to reflect the simple principles described in previous sections of this paper on excusable ignorance.[32] These principles are not hard to grasp and, although our understanding of them has grown in recent years, notably in the matter of the interconnectedness of so-called "market failure" and the structure of property rights, they have been well understood in broad outline for fifty years or more, and were under development for at least a century before that. We must look beyond ignorance for an explanation here. Blame for the lack of congruence between the principles and practice of economic policy seems to lie partly in a certain misconception of the nature of real world economic life that informs much economic analysis, but mainly in a basic flaw in the conception of the economic policy-making process which has underlain the development of the policy principles we have been discussing. Though those principles are not, after all, false, they are seriously incomplete, as we shall now show.

The misconception about the nature of economic life to which we refer involves taking perhaps too literally the static nature of the economic analysis from which the principles of policy are derived. As Conklin and Harley in particular emphasize in their papers, real world economies do not stand still, but are in a constant state of flux and evolution. The externalities and inequities which policy ought to address today probably did not exist yesterday and will have been superseded tomorrow. The detailed nature of the economic problem with which individuals and societies must cope is therefore constantly changing, and the pursuit of self-interest, whether individually in the market or collectively through the implementation of economic policy, involves the creative exploration of newly emerging alternatives. When one realizes this, it comes as less of a surprise to learn that actual policy, which has to be designed as a new and not fully understood problem emerges, often falls short of perfection.

The analytic flaw is even more basic than this. It arises from, of all things, a failure on the part of economists to appreciate both the pervasiveness of self-interest as a motivating force in economic life, and the importance of the requirement that its pursuit be channeled into certain directions by a well defined set of rules of behaviour if it is to promote society's economic well-being. At first sight this assertion must seem bizarre, because the previous section of this paper discussed little else but how the state might intervene in an economy populated by self-interested individuals in order to promote the public interest. However, that discussion ignored the fact that "the state" is not an agency independent of society, but is rather a component of society. Hence it failed to note that "state intervention" must itself inevitably involve the activities of self-interested individuals, and is therefore more likely to reflect their attempts

to secure their own ends by a new set of means, rather than a disinterested effort to promote the well being of society at large.[33] Moreover, the very fact that the actual conduct of economic policy takes place in an uncertain and evolving environment gives considerable scope for self-interested behaviour to be presented as public-spirited activity.

In the traditional conception of the economic policy-making process, *homo oeconomicus* inhabits the private sector of the economy, systematically pursuing his own self-interest, while a benevolent despot obligingly provides a set of incentives guaranteed to ensure that such self-interested behaviour will always and everywhere promote the public interest.[34] Recent work on the theory of economic policy, as Rowley's paper shows, makes a strong case for replacing this conception with one in which only one type of agent, namely *homo oeconomicus*, exists in all branches of society, including government, and single-mindedly pursues his own self-interest in all his activities. No doubt such a conception is in some ways too simple. We have had more than one occasion to remark that *homo sapiens* is a more complicated, and probably more agreeable, creature than *homo oeconomicus*. In particular he is capable of altruism and public-spirited behaviour. It is a safe assertion, also, that some individuals are more altruistic and public-spirited than others; but in the absence of any known political processes which ensure that such paragons inevitably end up in charge of economic (or any other kind of) policy, this observation is of little help.

There is no reason to suppose that the average policy maker will be more or less altruistic than the average anything else and, that being the case, the usefulness of analysis which posits self-interest to be the dominant force in private economic life strongly suggests that a similar way of looking at the public sector will also be fruitful. Thus, instead of asking how the *disinterested* policy maker *ought* to behave, modern analysis in the so-called "public choice" tradition asks instead how the *self-interested* policy maker *will* behave.[35] This approach has led to work of a practical kind, such as that surveyed by Bish, as well as to the much more abstract theoretical analysis surveyed by Rowley. Despite their common underlying vision of the policy-making process, these two bodies of work deal with rather different issues, and it will be helpful to discuss them separately. The first is concerned with means of ensuring that, given that a public sector agency is enjoined to pursue desirable ends, it does so efficiently, and the second is concerned with the processes whereby the ends of state activity are selected in the first place.

Efficiency Incentives in the Public Sector

We have seen earlier that public good problems provide a strong impetus toward state provision of certain types of output although, as Montmarquette tells us, in Canada as elsewhere, only a rather small fraction of

government activity is devoted to the provision of public goods. It might also be added that one technically appropriate solution to monopoly problems in the private sector is to have some government agency run the monopoly in question in the public interest. In any event, the fact that a particular good or service can be provided efficiently by the private sector is not, in and of itself, an overriding reason for not having this done by a state enterprise. The difficulty is, as Bish notes, that public sector agencies are notorious for their inefficiency, in the quite mundane sense of failing to provide any given level of service at anything approaching minimum cost, let alone in the technical economic sense.

The problem here arises from two not unrelated sources. First, public sector enterprises are carried on by federal, provincial and various forms of municipal government, and there is no reason to suppose that the size of such political entities corresponds to the optimal technical scale for the production activities implied by the commitment to the public provision of particular goods and services. Indeed, as Bish argues, the range of activities we expect our governments to undertake is so wide as to render any general matching up of optimal scales of activity quite impossible. Second, government provision of goods and services frequently involves government agencies being their sole, and hence *monopoly*, suppliers.

The fact that a government may (and in the case of public goods must) articulate the demand for a product on behalf of society's members does not necessarily mean that the government should also engage in the production activities required to satisfy that demand. It can instead purchase the goods and services involved on behalf of the citizens it represents. Once this proposition is grasped, a means of coping with the inefficiency of public enterprises becomes immediately apparent: government should, wherever possible, act as a purchasing agent, rather than as a producer of goods and services. If the marketplace in which it makes its purchase is competitive, the self-interest of suppliers will lead them to find the technically most efficient scale of operations, to seek out least-cost production methods, and also to engage in the kind of entrepreneurial activity which generates technical change in the nature of their products, not to mention in the means of producing them.

''Privatization'' is not necessarily involved here. In the analysis Bish sets out, the articulation of demand remains a public and not a private responsibility, as it must wherever substantial public good problems are encountered. Furthermore this analysis tells us, and much of the evidence cited by Bish confirms, that there is no reason why government agencies cannot themselves compete, among themselves, with voluntary agencies, or with private firms, in the provision of goods and services to other government agencies. As Bish notes, practical experience shows that competition, and not just the private pursuit of profit, gives powerful incentives to efficiency.

The competitive contracting out of the provision of government services, a practice that works *with* the forces of self-interest rather than against them, is becoming more widespread at the municipal level in such mundane, but important, areas as garbage collection and fire protection; but the principles involved seem to be of a much wider potential application. For example, we have already mentioned the widespread support in Canada for the public provision of universal health insurance; but there is also widespread public concern about the efficiency with which the current health care system delivers its services. In the light of the work Bish surveys, it is hardly surprising that those economists who have concerned themselves with improving the health care system's efficiency have, as Blomqvist points out, begun to question the nature of the contractual arrangements it embodies, and to suggest that they be revised in order to harness self-interest more effectively to the pursuit of efficiency. Similar points could be made about the provision of education, at all levels.[36]

Politics and Rent-Seeking

The inefficient delivery of specific government services presents important problems, but other difficulties arise in connection with the role of government in economic life. The pervasive and haphazard nature of state intervention in the economy, often unrelated to any systematic economic principles, and its accompanying tendency to stultify innovation and economic growth, are also matters of great concern. As was remarked earlier, the fact that state intervention can improve equality and efficiency in the economy does not mean that, when it occurs, this will be its aim. The legitimacy that economic arguments have conferred upon state intervention has been rather general in nature and has, as Usher tells us, in fact permitted a whole range of other goals to be pursued by such means. It is easier to understand why this has happened if we recall the fluidity of real world economic life and the propensity of all agents to act in their own self-interest, than it is if we regard government agencies as disinterested agents inhabiting a relatively stable economic environment and intent solely on improving the lot of others.

In a democracy, those who conduct economic policy are ultimately responsible to the electorate. Self-interested voters will support measures to benefit themselves as individuals, and the politician who can devise a policy which offers the most gains to the majority of the population, regardless of whether they are obtained at the expense of the minority or by some other means, will be the one who obtains and holds office. In this sense there exists, as Montmarquette tells us, a political marketplace as well as an economic one. Furthermore, if income or wealth redistribution is regarded as a legitimate activity of government, the opportunity for agents to increase their own welfare by reducing that of others, which

is closed off by the entrenchment of property rights in a market economy, is reopened through the political process.

If politics was about nothing but income distribution, the foregoing argument would lead one to conclude that a democracy would always develop policies whereby a relatively poor majority extracted extra income from a relatively rich minority.[37] It is far from clear that such a tendency would be a matter for regret. As Hartle (1983) has reminded us, redistributive policies that evolve in response to the activities of political pressure groups do bring social benefits as well as costs, and though such policies certainly undermine the perfect security of property rights, it is hard to see how this can, in and of itself, be objectionable. Such rights could not exist and be exercised in the first place without an embryo state with powers of taxation. Moreover, in so transparently simple a political framework, the disincentive effects of high taxes on productive activity would presumably be noticed by all concerned, and would act as something of a brake on the degree of redistribution which government would attempt to deliver.[38]

Politics is about many things other than income distribution in a static economic framework, however, and this fact makes the pursuit of economic self-interest through the political process — "rent-seeking" as Anne Krueger (1974) termed it — a much more complicated, not to mention potentially damaging, matter than the above simple argument would suggest. Political debates and action concern many issues, and some individuals have more at stake in some of these than others. The successful politician is therefore usually someone who forms a majority coalition of various groups, each pursuing different ends, and seldom someone who devises the most popular solution to a single problem. As Montmarquette, Rowley, Usher, Blomqvist and St-Hilaire and Whalley all point out in varying contexts, politics becomes, in part at least, a process whereby particular individuals or groups seek their own economic benefit in a continuously changing economic environment, and politicians obtain votes by catering to as many such groups as possible.

In such circumstances the specific benefits most likely to be provided are those which will impose the smallest possible perceived per capita costs on other members of society so as to minimize the incentives of the losers to devote time, trouble, and real resources to opposing the provision of such benefits.[39] The benefits in question will not always take the form of direct transfers of cash (though in some cases they might). Frequently they will involve the creation of new artificial sources of market power. Also, as Conklin points out, in an economic environment subject to continuous change which, though it may enhance the well-being of the majority, frequently threatens to impose losses on particular groups, such benefits are likely to involve the protection of existing sources of market power or the provision of subsidies to particular types of activity which

are likely to be approaching obsolescence and hence economic inefficiency as a result of newly emerging competitive pressures.

Buchanan (1980) has remarked that, from the point of view of the individuals concerned, seeking benefits through the political process is no different to seeking profits in the marketplace. Both activities are undertaken by agents to enhance or at least maintain their own economic welfare. From the point of view of society, however, there is a vital distinction to be made. Profit sought and created in the market must arise out of voluntary exchange; rents sought and created through the political process are obtained at the expense of others but, as Usher points out, those who receive them devote real resources to their acquisition that could instead be devoted to the creation of marketable output. It follows that political institutions which permit, or encourage, rent-seeking may harness the powerful forces of individual self-interest toward socially destructive ends. The interests of a particular group pursuing its own ends through the political process may coincide with those of society at large, and if they do then rent-seeking will be beneficial, as Hartle (1983) has pointed out, but there is nothing inherent in the activity that would guarantee this outcome, as there is in the case of voluntary exchange.

The "Protected Society"

We have already noted that rent-seeking may involve attempts to create new sources of income or to protect existing sources of income from new competitive pressures as the environment evolves over time. Coalitions may form which are in favour of change, or against it. However, given that political activity requires a certain amount of cohesion and organization among those involved if they are to succeed, it is not surprising that, as a matter of fact, much of the activity we are here discussing takes a defensive form. An already existing group which sees its interests threatened is better placed to act than one which must be newly formed to pursue some future benefit. Courchene (1980) has referred to the emergence of a "protected society" in Canada in which various groups, each one in and of itself a minority, have contrived through the political process to insulate themselves partially at least from the effects of economic change and evolving market competition. The outcome of such political activities will frequently be a diminution of society's economic well-being. They clearly lower economic efficiency, and there can be no guarantee that those who obtain the most economic benefit from political activity are also society's poorest members; indeed there are good reasons for believing the opposite: it is not usually the poor who have the time and resources available to pursue their self-interest through the political process.

All this goes a long way toward explaining why so much state intervention in economic life is devoted to granting special favours of various sorts to particular industries, or professional groups, rather than to the relief

of poverty and the promotion of economic efficiency, but it does not justify such intervention. It may be argued that a "protected society" is a rather comfortable one for its members, and that its creation helps in the attainment of certain aspects of social well-being whose importance is no smaller for being non-economic; but such reasoning is at best incomplete, and at worst misleading. It assumes that the comfort offered by a "protected society" is durable, but it may well not be sustainable over the long run.[40]

In the real world, as has already been stressed repeatedly, knowledge advances and technology continuously changes. These simple facts of life have important consequences, not least for a national economy which is but one rather small component of a broader international economic order. The use by particular interest groups of the political process for the kind of defensive rent-seeking described by Courchene (1980) can lead to what Mancur Olson (1982) has called institutional sclerosis. Olson suggests that a society afflicted with this disease neither generates much economic change internally, nor adapts well to economic change imposed from the outside so that over time its economic well-being inevitably falls, at least relatively, and perhaps in some dimensions absolutely as well. The evidence presented by Blais and McCallum shows that Olson's hypothesis is consistent with empirical evidence, while Usher (1981) has gone so far as to argue that a democracy which opens itself up too widely to rent-seeking behaviour runs a serious risk not just of inhibiting economic growth, but of destroying itself in the longer run as the political instability it thereby creates comes into play.[41]

Staving Off Institutional Sclerosis

The forces we are discussing here have deep roots in human society, arising as they do from the operation of self-interest in an environment in which its pursuit harms rather than promotes the economic welfare of others. However there are factors which can work against institutional sclerosis. Olson (1982) points to wars, revolutions, and other calamities as being "cures" for the disease. More optimistically, he also notes that major economic upheavals, like the wholesale adoption of free trade, can temper it; while Conklin suggests that aggressive entrepreneurial activity, to the extent that it is geared to the pursuit of profits in the market place rather than rents in the political arena, also works to prevent its onset.

The literature on constitutional approaches to policy making, surveyed by Rowley, and referred to more briefly by Montmarquette, is also of critical relevance to this issue. Institutional sclerosis may be viewed as a "public bad," and one is naturally led to look to collective acceptance of institutional arrangements that are designed to prevent political processes responding to special interest groups as a means of combatting the baleful effects of rent-seeking. We have seen earlier that incentives exist for individuals to grant coercive powers of taxation for the provision of

public goods. Similar incentives to collective action are inherent in the situations that Courchene (1980), Olson (1982), and Usher describe. The analysis of those situations inexorably points to the desirability of making arrangements that limit governmental response to pressure groups, and thereby indirectly suggests that such arrangements might be attainable.

The precise design of the arrangements is beyond the scope of this paper, but there is much discussion of such issues in the existing literature, as the reader of Rowley's essay will soon enough discover.[42] Obviously, the critical aim must be to make it more difficult for individuals, or groups, to maintain or enhance their own economic welfare at the expense of the rest of the community, while making it easier for them to do so by activities that will simultaneously enhance the well-being of others. One cannot rely on individual politicians and bureaucrats voluntarily to restrain themselves on a piecemeal basis. As both Usher and Blomqvist remind us, they are agents with interests of their own to pursue in these matters which will often run counter to those of society as a whole in particular cases.[43] However, one might get politicians and bureaucrats as a group, among other interested parties, to agree to maintain existing limits, and perhaps to accept new ones, on the range of discretionary behaviour that is in general open to them.

Such agreement is certainly a difficult objective to attain, but not impossible. Constitutional limits on the powers of governments at all levels exist already in Canada, and some of them, such as those partially guaranteeing national labour mobility, put important barriers in the way of regionally specific special interest groups. Moreover, the very fact that Canada's is a federal constitution places important limits on rent-seeking. It is much more difficult for an interest group to influence eleven governments than just one. Further development of the Constitution, either by outright amendment or judicial interpretation, can (but not must) be a powerful device for channeling self-interest in constructive directions. Furthermore, it is too little realized, as Blais and McCallum, as well as Conklin, point out, that commercial treaties such as the auto pact put important quasi-constitutional constraints on the conduct of domestic policy which limit the government's capacity to respond to political pressures in particular instances. Moreover, all democratic governments are subject to such pressures, and international treaties of this type also protect Canadian interests from being threatened by political pressures exerted on the governments of our trading partners by interest groups of their own.

Commitments to international organizations such as the GATT and the IMF also involve the Canadian government in surrendering discretionary power in a number of domestic fields in exchange for similar commitments by other governments. There seems to be widespread support in Canada for extending our international commitment to the creation of a more liberal economic world order, but such an extension would inevitably erect barriers to rent-seeking at home, and help to stave off institutional

sclerosis. Quite apart from formal constraints embodied in constitutions and treaties, informal but powerful limits can be, and are, imposed on policy by the climate of public opinion. For example, public reaction to the "back in" tax provisions of the National Energy Program, and to some of the retroactive tax changes proposed in the 1981 budget, has probably ensured that Canadian political practice for the moment is governed by a quasi-constitutional rule forbidding retroactive taxation.

The knowledge that social action directed toward the mitigation of scarcity is driven just as strongly by the self-interest of individual agents when it is taken through political processes, as it is when coordinated by market mechanisms, should make us cautious about the possibility of using the state to enhance society's well-being. However, the fact that we now understand that the same principles which govern private sector behaviour also play an important role in public sector activities should make it easier rather than more difficult to use state intervention constructively. Furthermore, Canada's economic policy regime already embodies formal and informal constitutional limits on governments' freedom of action, arrangements which are open to amendment and extension (albeit and appropriately with difficulty). Thus our caution should be tempered with optimism.[44] We do, nowadays, understand better than we did the processes whereby economic policy is designed and carried out, and the role of constitutional and quasi-constitutional arrangements in regulating those processes. This greater understanding should enable us to improve, if only modestly, the effectiveness of that policy in promoting economic well-being.

A Summing Up

The arguments pursued in this paper have now come full circle. We began with the assertion that scarcity is an enduring social problem, and that the means whereby society copes with that problem must involve the self-interested behaviour of individual agents. We have ended with the insight that state intervention in economic life is not something separate and distinct from such private activities, but is rather a particular manifestation of them. We began with the proposition that the pursuit of self-interest in the private sector must be channelled into particular directions by a framework of social institutions if it is to promote social well-being. We have ended with the observation that the same is true of the political and bureaucratic processes whereby economic policy is formulated and executed.

The basic lesson to be learned from the literature surveyed in this collection, therefore, is that the fundamental problem for economic policy is not the design of specific measures to improve economic performance, but the design of rules of behaviour, and mechanisms for their enforcement, to govern the political and bureaucratic processes through which

such specific measures are implemented. It is no use telling politicians and bureaucrats to pursue the public interest. One must place them in an institutional framework wherein it is in their own self-interest to do so. The creation of such a framework must itself be subject to the force of self-interest, but this does not mean that the task is inherently impossible. A framework of rules is a public good, and societies are not only capable of providing such goods for themselves but in fact do so.

The crucial step in ensuring the provision of any public good is to convince individuals that it is in their own interest to give up access to certain activities (on the understanding that all others will simultaneously do the same) in exchange for the benefits that the ultimately self-imposed limitation in question will confer. The first and vital task that must be accomplished if the conduct of economic policy is to be improved in Canada is therefore to convince bureaucrats and politicians, but above all the electorate, to accept limits upon their individual freedom of action which will make rent-seeking through the political process prohibitively expensive. Such limits can never be absolutely binding. Constitutional arrangements, whether formal or informal, require continuing public consent if they are to retain any force. This, however, does not mean that they are nugatory. Rather it implies that their creation and maintenance is not a once-and-for-all task, but an ongoing process.

Social and economic development does not take place at an even pace. The current time is particularly appropriate for the intensive discussion of proposals to reform political and economic institutions, because Canada's recent and current economic difficulties make it easy to persuade the public of the importance of such discussion. The very malaise which has done so much to promote academic debates on these issues also guarantees that their outcome will attract widespread public interest. If this essay, and the others collected in this section of the Commission's research program, help to shift the focus of public debate away from piecemeal discussion of specific issues, and toward the general problems inherent in the processes whereby economic policy is formulated and implemented in Canada, and the constraints to which those processes might suitably be subjected, it will have served its purpose.

Notes

I am grateful to David Ablett, Robert Bish, Åke Blomqvist, Tom Courchene, Scott Gordon and Charles Rowley for their comments on earlier drafts of this paper, and to Julie Groulx both for comments and for bibliographic assistance. None of them however, is implicated in any errors it may contain.

1. To the extent that anyone has ever been the first to say anything, credit for explicitly formulating the idea that scarcity is the central idea of economics must go to Carl Menger (1871), though even a casual reading of *The Wealth of Nations* (1776) will show that Adam Smith thoroughly understood the notion. Lionel Robbins' (1932) *Essay on the Nature and Significance of Economic Science* popularized Menger's particular point

of view in English language economics. It should be noted that, in the mid-18th century, David Hume explicitly made scarcity the focal point of his philosophy of law, and that Menger was deeply indebted to Hume. On this, see von Hayek (1967, chaps. 6 and 7).

2. Self-interested behaviour encompasses a wider variety of activities than those associated with our everyday notions of "selfishness" and "greed." To use Smith's example, the butcher, the brewer, and the baker are looking to their own self interest, rather than ours, when they sell us our dinner, but this does not imply that they are of necessity either selfish or greedy, though they might be.
3. For a discussion of the role played in economic analysis by this "universal bogey" as Robbins (1932) called him, and a justification of the methodological principles underlying his employment, the reader might consult Machlup (1972). It should be noted explicitly that one of the talents with which *homo oeconomicus* is endowed is the talent for seeking out new ways of coping with scarcity. The creative element in self-interested behaviour is stressed by Brunner and Meckling (1977).
4. It should go without saying that to subsume the activity of production into that of exchange in this way does not meet with universal approval among social scientists. In particular, Marxist thought distinguishes sharply between the two activities, and in this it simply follows the classical tradition of Adam Smith, David Ricardo, and John Stuart Mill. The intellectual origins of the approach taken here lie in the work of Menger (1871) and subsequent Austrian economists. The analysis of this paper is in the Austrian tradition in another way, in as much as it justifies property rights because they permit voluntary exchange, without asking about the moral basis of some initial distribution. See the quotation from von Mises (1951) used by Usher (1981), who explicitly rejects the Lockean view that the expenditure of labour power establishes property rights. On this see Usher (1981, pp. 6–8, 65 et seq). The Lockean view leads directly to Marx's theory of exploitation.
5. The modern classics dealing with these matters are Hicks' *Value and Capital* (1938), Samuelson's *Foundations of Economic Analysis* (1947) and Debreu's *Theory of Value* (1959). In this series, Schworm's paper provides an excellent non-technical discussion of the basic results yielded by these works and the literature they have inspired.
6. And in a world of nation states, national defence too must be provided for. The problem of providing for an institutional framework to underpin laissez-faire has long been recognized. Adam Smith's famous Glasgow lectures of 1763 on *Justice, Police, Revenue, and Arms* antedate the *Wealth of Nations* by 13 years.
7. As we shall see in due course, there are places where the simultaneous pursuit of more than one aspect of economic well-being leads to conflict. The same is true of the simultaneous pursuit of non-economic and economic goals. For a penetrating analysis of the problems which this fact raises see Gordon (1980), from whom I have consciously borrowed the verb "to cope" (and much else) for use in this essay.
8. The neutral word "events" is deliberately chosen. Many more factors than policy changes affect well-being.
9. Along similar lines, we may argue that a change which closes off the agent's initially chosen behaviour, and forces the adoption of alternative actions which were available initially, unambiguously reduces his welfare. Some changes simultaneously close off the initially preferred alternative and lead to the selection of one that was not in the first instance open, and here we can say nothing about whether welfare is enhanced or not. Behaviour does not always reveal all that we wish to know about preferences.
10. It should surprise no one therefore that Milton and Rose Friedman have entitled their eloquent defence of market mechanisms *Free to Choose* (1980).
11. In economists' jargon, an event which makes at least one agent better off without making someone else worse off, causes a Pareto improvement. A state of affairs which permits no Pareto improvements to be made is a Pareto optimum. Situations in which some agents are better off and others worse off are not Pareto-comparable. The development of so-called 'compensation criteria' by Hicks (1939) and Kaldor (1939) was an attempt to circumvent non-comparability problems. The basic argument was that, if the gainers from some event could, in principle, compensate the losers and still remain better off

themselves, efficiency could meaningfully be said to have increased and a Pareto improvement to have occurred. Quite apart from the ethical problem of basing such a judgment on potential, rather than actual, compensation of losers, compensation tests of various sorts do not always yield consistent answers, as Scitovsky (1941) showed.

12. Indeed, if the incentive effects on productive activity of redistributive measures are ignored, such arguments can be used to make an ethical case for a completely equal income distribution, as Lerner (1944) showed. When incentive effects are allowed for, they greatly soften this extreme conclusion, as the so-called "optimal income taxation" literature which builds upon the work of Mirrlees (1971) has established.
13. This work, whose theoretical origins may be traced back to the contributions of Fisher (1907), builds upon pioneering studies by Friedman and Kuznets (1945) of labour market behaviour and Friedman (1957) of the consumption function.
14. It should be noted that, when the general principles under discussion here are applied to specific policy issues as they arise in Canada, questions about how to treat the welfare of people elsewhere in the world inevitably arise, and are similar in nature to the questions surrounding the treatment of future generations. Such ethical problems occur in a particularly acute form when immigration policy is discussed, for obvious reasons, and are dealt with at some length by Marr and Percy in volume 12 of this research series.
15. The argument of this paragraph echoes, quite deliberately, the approach taken by Gordon (1980, chap. 5) to the problems involved in reconciling conflicts among social, as opposed to narrowly economic, goals.
16. Externalities loom large in the work of such pioneers of welfare economics as Pigou (1929) and Lerner (1944). However, in this work externalities tend to be presented as arising from the nature of technology, and as always requiring state intervention. It was only with Coase (1960) that their origin in institutional rather than technological factors came to be recognized.
17. Menger and the Austrians were well aware of the problems that could arise when free goods became scarce, but regarded the establishment of property rights as the only way of coping with them. This view in turn formed the basis of von Mises' position that only capitalism provided a viable basis for the organization of economic life, see e.g., von Mises (1951). This view was disputed by Lange (1937) and Lerner (1944) in their expositions of the economics of what came to be called "market socialism." As Scott (1983) has argued, it is one thing to argue that such rights should be created, and another to explain how the task should, or will, be carried out. There are, as he says, examples of successful governmental attempts at creating property rights and of failures. At the same time to rely on the evolution of the common law to deal with such problems spontaneously has not always proved satisfactory either.
18. The fact that, in some cases, the allocation of property rights and their subsequent enforcement is prohibitively expensive, means that the analysis of Pigou and Lerner of externalities retains considerable practical significance, even though its theoretical basis is flawed. Cf. note 16.
19. Indeed, as Coase argued in another profound, but earlier (1937) paper, a capitalist firm is a social institution within which economic activity is organized on a command basis rather than by voluntary exchange. He explained the existence of firms in terms of their ability to use regulatory mechanisms to solve certain coordination problems more cheaply than could a system of voluntary exchange between individuals, and their size by referring to limits beyond which such methods became too expensive to operate. He thus answered Marx's famous gibe against opponents of socialism that the strongest supporters of the factory system could find nothing ". . . more damning to urge against . . . a planned economy than . . . that it would turn all society into one immense factory." Cf. Marx (1889, p. 350).
20. It would be unlikely to do so because it would be unable to set a premium low enough to attract customers. In the example cited here, and in the absence of government-provided unemployment benefits, the wage paid to employees would include a component to compensate workers for the inherent irregularity of their employment.
21. It should be noted that some security over time in property rights is essential for a capital market to function effectively. This consideration is an important element in the case

for limiting state intervention in the economy by quasi-constitutional rules discussed below. See also Brittan (1983, p. 237).

22. This is a sentiment with which Marx would have readily agreed. He termed competitive markets: ". . . a very Eden of the innate rights of man. There alone rule freedom, equality, property and Bentham. Freedom because the buyer and seller of a commodity . . . are constrained only by their own free will . . . equality, because . . . they exchange equivalent for equivalent. Property, because each disposes only of what is his own. And Bentham because each looks only to himself" (Marx, 1889, p. 155).

    As is well known, Marx saw the fundamental injustice of capitalism as arising not in the sphere of exchange per se, but in the interaction of exchange mechanisms with the processes of production. To the extent that unequal distribution of initial endowments lay at the heart of his theory of exploitation, however, Marx's analysis of the failure of market mechanisms to generate distributional justice bears more than a passing resemblance to that presented here.

23. Keynes, it will be recalled, termed the depressed state of the British economy in the late 1920s "The Economic Consequences of Mr. Churchill," included in Keynes (1931), while Friedman and Schwartz (1963) is the *locus classicus* for the view that the United States Depression of the 1930s originated in policy errors.

24. It is worth noting that Keynes' *General Theory* (1936) has virtually nothing explicit and systematic to say about policy. What we nowadays think of as the policy-oriented system of "Keynesian economics" is much more the creation of Lerner (1944) and Hansen (1949). The most thorough exposition of the traditional view of the role of the state in the pursuit of allocative efficiency and distributional equality set out here is Lerner's (1944) *Economics of Control* which also, as we here note, contains a pioneering exposition of the policy implications of Keynes' macroeconomics. The importance of Lerner's work in shaping our views of economic policy is much underrated these days.

25. Schworm notes however that regulatory solutions to efficiency problems tend to be rigid and difficult to amend. This is a considerable drawback to their effectiveness in real world situations in which a changing economic environment is of the essence. The difficulties which the Canadian authorities continually encounter in their efforts to regulate broadcasting in the face of rapidly changing technology provides a striking example of the issues involved here.

26. Layard (1972) is a standard and readily accessible source of information on the techniques of cost-benefit analysis.

27. The reader will recognize that the above examples all, in one way or another, involve state intervention to deal with public good problems.

28. The evidence also tells us that this overall response is the outcome of very different and complex behaviour patterns at the level of individual members of the labour force. Primary earners do not respond much to wage variations, but secondary, particularly female, earners in households do. However this latter response is offset by the fact that the supply of labour by secondary earners is strongly, and negatively, related to the earnings of primary earners. On this see Nakamura and Nakamura, in volume 17 of this research series.

29. Expenditure taxation has been on the agenda of economic debate ever since the publication of Kaldor's celebrated (1955) study. Quite apart from the advantages stressed in the text here, it might be noted that value-added tax (VAT), an increasingly popular form of revenue raising, is essentially a flat rate tax on expenditure. Hence it may easily be integrated in a coherent way into a tax system based upon expenditure.

30. The main differences between this proposal and current practices would involve levying surcharges, above normal rates, on benefits of various kinds, and taxing unemployment benefits on a family, rather than an individual basis. The case for implementing such a claw-back scheme rests on the efficiency gains to be realized from the lower general tax rates that it would permit. It should be noted that claw-backs themselves impose higher marginal tax rates on some people, and that, therefore, the case for implementing them must rest on the efficiency costs associated with this latter effect being, relatively speaking, small. Blomqvist argues that there is a presumption in favour of this conclusion.

31. See Blomqvist (1979). Note, however, that although Blomqvist advocates public participation in the provision of health care, he is no defender of the administrative structure under which such care is currently provided.

32. The reader's attention is drawn to the fact that we here use the adjective widespread, and not total. Despite the problems discussed in this section, public goods do get provided, externalities are tackled, and income does get redistributed. The problem is not that state activity never pursues these goals, but that it often does so inefficiently, and that arguments about their value are often used to justify state activities that have nothing to do with their attainment.

33. The realization that government activity reflects individual self-interest is not new. Adam Smith's discussion of mercantilism anticipates some of the ideas we are about to survey, as Baysinger, Ekelund, and Tollison (1980) point out. Moreover Gordon (1980, pp. 25–27) cites James Mill as having used just this insight as the basis of his case for representative government in his 1820 *Essay on Government*. Mill was, as Gordon remarks, over-optimistic about the power of representative institutions to channel the self-interest of policy makers into socially beneficial directions.

34. It is nowadays fashionable to label this view of policy making "elitist" and to attribute its pervasiveness, at least in the British Commonwealth, and to a lesser extent the United States, to the enormous personal influence of Lord Keynes. This is the unifying theme of the essays collected in Johnson and Johnson's (1978) *Shadow of Keynes*. Without wishing to deny the importance of Keynes, or the elitist nature of his approach to just about everything, I would suggest that to argue along these lines is something of an oversimplification, which runs together two separate ideas. To begin with we have what Hayek (1967) has called "constructivist rationalism," which he traces back to Hobbes, Bacon and Descartes. This is a point of view which, not always erroneously in my view, entertains the possibility of government action being able systematically to enhance social and economic well-being. There is nothing elitist per se to this viewpoint. The idea that some individuals are particularly well suited to act disinterestedly on society's behalf to implement policy is elitist, but has been continuously influential since Plato. It seems rather hard to blame Keynes for the continued influence of these two long-standing intellectual traditions.

35. The argument here is essentially that which has underlain discussions of the desirability of constitutional forms of government for the last two or three hundred years, and which informs Popper's *Open Society* (1946). To paraphrase Popper, if one asks who should conduct policy, the answer tends to the "the best people". If one presumes that the "best people" will in fact be in charge, it is natural for the social scientist to derive the rules whereby they should promote society's well-being. If one instead asks how a government can be controlled when it is not made up of "the best people," social enquiry is turned in a very different direction.

36. For one set of proposals in the area of health care, the reader is again referred to Blomqvist (1979). It is also worth pointing out that various schemes to increase competition in the provision of education by resort to one form or another of a voucher system such as Davies and MacDonald (1984) have recently discussed, are in the same spirit as the arrangements Bish discusses. I do not mean here necessarily to endorse, or rule out of court, either set of proposals. As Bish is at pains to stress, effective arrangements for engendering competition vary greatly depending upon the particular service being discussed; and quite small differences in the structure of contracts utilized can make big differences to the outcome of the activity. Careful study of particular problems is the only way to proceed here.

37. Indeed, according to the so-called "median voter" model, associated with the work of Downs (1957), the majority in question would be one member bigger than the minority, and the amount of redistribution undertaken would be that favoured by the median voter.

38. What I am suggesting here is that, in their voting behaviour on the matter of distribution, rational individuals would take account of incentive effects. Meltzer and Richard (1981) show that, in this case, an application of the "median voter" model will lead to the extent of income redistribution, of what they term the size of government, increasing as the ratio of the economy's mean income to the median voter's income increases. On this issue, see Montmarquette and Usher.

39. The analysis here is essentially that discussed by Hartle (1983, pp. 549–52, and is complementary to that of Meltzer and Richard (1981) as an explanation of the size of government.
40. In popular language, a protected society is one whose members take great pride in their "quality of life." It was at one time customary to refer to the "quality of life" in Britain when defending that country's poor postwar economic performance; not much is heard of this particular argument nowadays.
41. Brittan (1983, chap. 10) points out that what is frequently called the "British sickness" is a particularly virulent form of the disease which Olson (1982) diagnoses.
42. And there are parallel arguments in the literature of macroeconomics having to do with monetary growth rules, exchange rate regimes, balanced budgets and the like, which are discussed elsewhere in this Commission's research output.
43. And to politicians and bureaucrats, we may, following Hartle (1983) add the media as an important set of players in the rent-seeking game.
44. This would not be a universal opinion. In the preface to the (1977) edition of his *Canadian Quandary*, Johnson gave the analysis of rent-seeking behaviour as a reason for his new-found pessimism about the capacities of economic policy to improve social well-being. Such analysis certainly makes the policy problem look more difficult than does the traditional analysis set out in this paper, but the deeper understanding of the issues at stake which it yields surely makes it more likely that future policy, though perhaps less ambitious, will be effective in achieving its ends.

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The Measurement of Economic Well-Being

LARS OSBERG

Introduction

In 1980 Ronald Reagan asked the American people a seemingly simple question: "Are you better off today than you were four years ago?" Although U.S. per capita disposable real income (i.e., after tax and after inflation) was, in 1980, some 7.6 percent *higher* than in 1976,[1] his audiences answered "No!" Like any politician, Reagan was implying that his government would "do better." The task of a Royal Commission on Economic Prospects is, similarly, to propose economic policies that will make people "better off." However, if increases in per capita disposable real income do not necessarily make people feel "better off," one might well ask: What is it that constitutes "economic well-being"? When is society economically "better off"?

The difficulty is that measuring economic well-being requires us to find a way to "add up" economic and social benefits over different generations of individuals, over different individuals of the same generation and over different years of the same individual's life. A given level of national income may be obtained at the cost of increased poverty and inequality or at the cost of greater economic insecurity. Judgments about whether society is becoming better off thus depend on the weight given to current income relative to the inheritance of future generations and to economic inequality and insecurity among the current generation.

In the first section of this paper I discuss the bequest this generation will make to future generations and argue that there are few grounds for believing that either decentralized private decisions or collective public decisions will automatically produce an optimal inheritance for future generations. We must, therefore, make conscious choices. This generation decides how much it will consume and how much it will leave for the consumption of future generations, but we need some measures of the value of

our collective bequest in order to make informed decisions. For some types of assets we can use market prices as a method of valuation, but Canadians have also indicated that there are some assets they wish to put "beyond the market" as a national heritage held in trust by this generation for the benefit of future generations.

Economic events generally produce some winners and some losers, and deciding whether society is better off requires us to weigh the losses of some people against the gains of others. In the second section I argue that this inevitably involves ethical choices and that we ought to be sure that the measure of well-being we adopt has implicit in it a set of values that we are willing to defend. If we follow the old precept of "do unto others as you would have them do unto you," then we will assign greater weight to the progress of the poor than to the advances of the affluent in measuring economic well-being. The crucial issue, on which views differ widely, is how much greater that weight should be.

Some economic policies involve a trade-off for society between income growth and risk. The third section examines the costs of economic insecurity and the adequacy of private capital and insurance markets as methods of insulating individuals from variability in income flows. Because social insurance programs are usually designed to provide less than full coverage of economic losses (in order to preserve incentives to avoid losses), increases in economic insecurity carry real costs to individuals. Measures of economic well-being should, therefore, be adjusted to reflect the uncertainty and variability of individuals' year-to-year flows of real income.

In the fourth section I discuss the measurement of current consumption and the accumulation of wealth. A comprehensive measure of consumption would include the value of both marketed and non-marketed goods and services, the value of leisure and increased longevity, and the benefits of the consumption of public goods. An all-inclusive notion of wealth accumulation would add tangible capital in housing, equipment and structures, investments in training, research and development, and consumer durables, net changes in the value of stocks of natural resources, and some estimate of the costs of any environmental degradation.

The fifth section closes with a discussion of the statistics one might use to measure trends in economic well-being. Since different people will assign different degrees of emphasis to current consumption, to the inheritance of future generations, to inequality and poverty, and to economic insecurity, it is not possible for a single measure of economic well-being to satisfy everybody. However, the debate on economic policy could be improved by the availability of comprehensible data on each of the dimensions of economic well-being. To avoid confusion, in this paper we use the term "utility" to refer to an individual's satisfaction with economic outcomes at a particular time; the term "welfare" to refer to some measure of an individual's total utility over his or her lifetime; and the term "well-being" to mean the total welfare of society as a whole.

The Welfare of Different Generations and the Well-Being of Society

The Welfare of Future Generations

The first question to ask in measuring economic well-being is whose welfare should be considered. Certainly we should consider the welfare of all existing persons in society,[2] but should we consider as well the welfare of generations yet unborn? We clearly care about the sort of world into which our descendants will be born; and our concern is manifested in such public debates as those surrounding nuclear power, or the preservation of natural species, where people concerned about the environment emphasize the irreversibility of the decisions of the current generation. However, if nuclear waste became harmlessly inert in one hundred instead of several thousand years, or if the extinction of a species were a temporary phenomenon of a century or so rather than permanent extinction, anti-nuclear and conservationist groups would have far less support than they now enjoy. Since almost everyone now alive is sure to be dead 100 years from now, our concern about irreversibility can really be explained only in terms of a concern for the welfare of future generations.

Each generation inherits a stock of resources from its ancestors, enjoys a flow of consumption during its lifetime, and bequeaths a stock of wealth to its descendants. Clearly, the current generation derives pleasure from its consumption of goods and services; it is equally clear that the current generation *could* say "après moi, le déluge" and *could* increase its current consumption by running down the capital stock, by exhausting resources, and by disregarding long-run environmental degradation. We do not do this, however, presumably because we do not think we would be better off if we did. This implies that the economic well-being of society depends on more than the consumption of the current generation, and that any measure of economic well-being must place a value on our bequest to future generations.

Optimal Bequest and the Coordination of Savings

If people always saved the optimal[3] amount out of any given income, then it would not be possible to increase economic well-being by transferring resources from the consumption of the current generation to the inheritance of the next. Whenever incomes went up, economic well-being would necessarily also go up. But if savings decisions are not, in aggregate, automatically optimal, then it is possible for economic well-being to be increased by a better allocation of a given national income between savings and consumption. It is possible also for economic well-being to fall, despite a rise in income, if there is, at the same time, a shift to a worse distribution of resources between this and future generations.

The bequest this generation leaves will be composed partly of privately owned assets (e.g., machine tools), partly of publicly owned assets (e.g., roads) and partly of goods that are not owned, in any effective sense, by anyone (e.g., the atmosphere). In part, our concern for future generations is expressed through the purely private transfers we make to our children, both in education in useful skills and in gifts or bequests of private property.

However, even if purely private property were the only sort of asset, decentralized private decisions might well imply that the private savings of this generation would not leave an optimal bequest to the next. For markets to generate an efficient allocation of resources, individuals must respond to prices. For markets to generate an efficient allocation of resources over time, individuals need access to price signals over time. In the real world, however, forward markets, which would provide these signals, are rare and short term.[4] We could have more confidence in the private decisions of, for example, oil producers to save the "correct" amount of oil in the ground for the year 2000 if oil producers and consumers could establish now a forward price for oil in the year 2000. As it stands, future oil prices are highly uncertain because no such forward market exists, and competitive markets may well produce inefficient patterns of resource depletion and capital accumulation over time.[5] In addition, decentralized private decisions may produce outcomes that individuals would themselves regard as inequitable between generations. In providing for my own children's future I know that their incomes will come partly from the wages they earn and the capital I bequeath to them. However, the wages they earn will depend partly on the size of the capital stock of the economy, which depends in turn on the bequest decisions of all parents. If I misjudge what everyone else is going to leave as bequests, the incomes of my children might well differ from what I would consider equitable.[6]

In addition, publicly owned assets, such as roads and hospitals, are accumulated at a rate determined by government decisions. The accumulation of private capital, in machinery and in skills, is also affected by government policy decisions regarding tax incentives to encourage savings, funded or pay-as-you-go pensions, and the financing of research and higher education. Finally, our environmental bequest to future generations is inherently a collective decision, as manifested, for example, in the standards we establish for the long-term disposal of toxic wastes and the policies we adopt to prevent long-term environmental degradation.[7] There is no guarantee that collective decisions will imply an optimal total bequest to future generations any more automatically than decentralized private decisions. Nevertheless, because government, whether by conscious action or unconscious inaction, has so much influence on the accumulation of all types of assets, there is no real alternative to recognizing the implications for capital accumulation of policy decisions.

The Valuation of Intergenerational Transfers

To develop an intelligent policy about the bequest we leave to our descendants, we need a way of measuring that bequest. Economists have generally argued that capital assets should be valued by the discounted present value of the stream of future consumption they generate, but there is some dispute as to the appropriate rate at which to discount future consumption.[8] In a predominantly private enterprise economy, the rate of accumulation of private capital will depend heavily on real interest rates. Higher interest rates will mean less private investment, but if investment projects in the public sector earn a rate of return less than that earned by private sector projects, it would be possible to increase the total productivity of the capital stock by reallocating investment from the public to the private sector. It can therefore be argued that all public investment projects, and environmental benefits over time, should be evaluated with reference to their "social opportunity costs," i.e., the returns of the private sector investment projects displaced by public sector investment. However, the rate of return on private sector projects will typically embody an allowance for the risk of individual projects as well as for the tax that must be paid on future returns from the project. Consequently, using market interest rates to discount future receipts may short-change the future, because society in aggregate would be willing to accept a lower rate of return and invest more for the future than market interest rates would indicate.[9] Society's pure "rate of time preference" (the relative weight society places on future consumption versus present consumption) is, however, difficult to determine empirically.

If we use discounting to evaluate the future, even at a relatively low rate of discount such as 3 per cent, we say that a dollar of cost or benefit that occurs in 40 years' time is equivalent to a current expenditure or receipt of roughly 30.67 cents ($=\$1(1/1.03)^{40}$) while the cost or benefit of a dollar 150 years from now has a present value of roughly 1.18 cents ($=\$1(1/1.03)^{150}$). However, it is one thing to say that I regard the value of a dollar received at age sixty as equivalent to 30 cents received at age twenty; it is another thing entirely to say that a dollar of my great-great-grandchildren's income is "worth" only a penny of my own.[10] For example, if the options for storing hazardous wastes are either burial in containers that corrode after 150 years or permanent disposal at some additional cost, then discounting at 3 per cent would imply that we should choose permanent disposal only if its additional cost is less than 1 per cent of the cost of the damages that will be borne by future generations. Would it be ethical to impose a dollar of such costs on future generations in order to increase our own consumption by a penny?[11] Is society better off if we do so? Environmental legislation would imply that the general answer to this particular question is "no," as environmental legislation typically mandates the permanent disposal of toxic wastes without mention of costs.

A National Heritage?

Discounting over time still requires some method of determining relative values at a point in time, and economists tend to propose market prices as a solution.[12] But when preservationists say that something is a "priceless part of our national heritage," they are saying that they do not believe that its social worth can be estimated, even approximately, by reference to current market prices and that there are some goods for which a concept of social stewardship is appropriate, i.e., goods that should be held in trust by the current generation, to be passed on, intact, to succeeding generations. For most environmentalists, the broad categories that make up our "heritage" would include man-made objects of great beauty or historical significance, renewable resources, and plant and animal species. Some things are agreed by most people to fall clearly into one of these general categories, while others are much more debatable, but the common denominator in the concept of a national heritage is that these are irreplaceable[13] assets that could, under reasonable conditions, produce utility for many generations to come. Natural species such as passenger pigeons or loons can be exterminated, but not regenerated. Historic buildings and great works of art can be destroyed, but cannot thereafter be re-created. There is broad agreement in our society that such destruction should not, in general, occur (as well as a good deal of argument about particular cases).

Forbidding the destruction of a particular asset is, in one sense, equivalent to saying that society does not want to sell it at any likely price. This cannot be said to be "irrational" since individuals, alone or in aggregate, can presumably refuse to sell whatever they don't want to sell. It is irrational, however, to claim that there is no cost attached to such a decision. There is probably *some* cost at which the current generation would be prepared to sacrifice the interests of future generations, but the difficulty lies in knowing at which cost it should do so. In deciding, for example, whether to log a wilderness area or preserve it for future generations, we must weigh the current financial benefits of logging against the value of untouched wilderness to future generations. Since they are as yet unborn, we cannot know how much they will value wilderness recreation or, for those who may not actually go, having the option of participating in wilderness recreation.[14] Survey methods and observed demands have been used to estimate the value the current generation places on such benefits, but the value to future generations, and the value we should attach to their satisfactions, are much more difficult to gauge. In computing the value of this generation's bequest, the concept of heritage can, however, save us a fair amount of effort. If there is broad agreement that some assets (e.g., the Peace Tower?) will always be passed on intact to future generations, then to assess trends in economic well-being we need only examine trends in consumption and the stock of other assets. Like the

family heirloom that has no price because it is never sold, heritage assets pose some of the trickiest problems of valuation; on the other hand, there is no need to compute an explicit price for a good that will never be sold.

The idea of a national heritage of goods that we place "beyond the market" can be extended to social and political institutions as well as to economic goods and services. Canadians are not interested in taking bids on their national independence or their rights of citizenship. Even if a high price could be obtained, these things are not for sale, either now or for future delivery. The idea that our descendants will derive pleasure from rights and freedoms such as the right to vote is, however, only part of the reason why we wish to preserve them. In part we also want to promote cultural continuity, to ensure that in terms of basic values our descendants will be somewhat "like us." The problem, of course, is to distinguish between valid demands for continuity (e.g., maintenance of the right to form a union) and invalid demands for continuity (e.g., traditional pay scales and employment patterns). The notion of a national heritage is open to potential abuse, in that it can be extended to justify preserving "life as we have always known it," but it also has the potential advantage of asking us to specify what we want to maintain from the past.

Net Foreign Indebtedness

Up to this point we have considered only the net acquisition of real assets by the current generation, but there is a corresponding set of financial liabilities of households, enterprises and governments. To the extent that these financial claims are the property of Canadian households, they generate a distribution of wealth — and ultimately of consumption — which we consider further in the next section. To the extent, however, that the current generation of Canadians piles up net liabilities to foreigners, future generations are enriched by whatever increase in the capital stock is financed from foreign sources and impoverished by the future repayment of these liabilities. Historically, the issue of whether Canadians are mortgaging the future by accepting inflows of foreign capital has been extremely contentious. That portion of liabilities to foreigners that is debt has specified maturity dates and interest rates; as a result, its costs are relatively easy to calculate. The costs of foreign ownership in the form of equity capital, however, are much harder to estimate, not only because they depend on the future level of corporate profits but also because foreign equity ownership has consequences — technology flows, sourcing of research and development, access to export markets, and so on — whose net costs are the subject of great controversy.[15]

Summary

The "economic well-being" of the current generation depends on both the flow of consumption it receives during its own lifetime and the

"bequest" it leaves for the benefit of future generations. We cannot *assume* that decentralized private savings decisions will always produce a "bequest" to future generations that is either efficient or equitable between the generations. To assess trends in the economic well-being of society, we must have some way of assessing the value of our collective bequest.

Part of the bequest of the current generation is in the form of private transfers of skills and private property, part in the form of publicly owned assets and part in the form of public goods which can, with some adjustment, be valued with reference to market prices. One can, in principle, value these assets by computing the present value of the consumption they enable future generations to obtain.

It is often argued that for some items, a "national heritage," the market provides a very poor estimate of value and that these assets should be passed, intact, from one generation to the next. If this concept of "social stewardship" is accepted it simplifies somewhat the problem of measuring trends in economic well-being. There remain, however, the conceptual and legal problems of defining the categories of goods which qualify for this removal from the market mechanism, as well as the continuing practical problems of case-by-case determination of particular items.

Some Canadian legislation (e.g., on historic sites, disposal of toxic wastes) can be seen as evidence that as a society we have in practice already adopted a fuzzy notion of a "national heritage." If this idea were made more explicit, its costs and benefits could be more clearly examined.

To the extent that the current generation borrows more abroad than it lends, it burdens future generations with a debt to foreigners. The burden of this debt is, however, difficult to estimate since part of it takes the form of foreign ownership of Canadian industry, whose net costs are highly uncertain.

The Social Welfare of Unequal Individuals

Winners Versus Losers: The Problem of Weighting

One of the simplest and most common ways of assessing trends in the welfare of the current generation is to examine trends in average consumption.[16] If, for example, average consumption increases by $5, some would say that average economic welfare has increased. This conclusion is reasonable enough if *everyone* is able to consume $5 more in goods and services. However, it is rare, in practice, for economic events to produce only winners; more often they produce some losers and some winners.[17]

If there are two individuals and A's consumption increases by $110 while B's falls by $100, it is still true that average consumption has risen by $5, but it is no longer obvious that the welfare of "society" (i.e., A + B),

or even the average welfare of A and B, has increased. Certainly B would argue that it has not, and where more than two people are involved it is quite possible for the majority of people to become worse off even as average consumption rises. If, for example, five individuals in year 1 received \$11, \$12, \$13, \$20 and \$24 respectively, while in year 2 they received \$10, \$10, \$10, \$25 and \$45, the average level of consumption increases from \$16 to \$20 (i.e., by 25 percent), but the majority of people are worse off.

When we ask for a measure of the economic well-being of society, we are asking for a way of summarizing the experiences of dissimilar individuals, a way of weighing the losses of the losers against the gains of the winners and deciding which is greater. Do we say, in the five-person example, that economic well-being (as measured by average consumption) has gone up? In that case we are saying that the gains of the two who are better off outweigh the losses of the three who are worse off. Do we say that economic well-being has declined because the median level of consumption (the level below which 50 percent of the population falls) has gone down? In that case we rate the small dollar losses of the majority as more important than the large dollar gains of the minority. Either choice involves an ethical judgment about whose welfare should count more heavily in evaluating social states. The need to make ethical judgments of some kind cannot be evaded, although we can hope for a solution to the problem of weighting that accords with values that we can defend.

The Utilitarian Argument

The solution proposed by the utilitarian philosophers of the nineteenth century was to measure social welfare by the total satisfaction, happiness or utility of all individuals rather than by their total consumption. If individual A originally had \$10,000 and individual B had \$200, the utilitarian would add together utility A (\$10,000) and utility B (\$200) and compare it to the sum of the utility that A would receive from \$10,110 and B would receive from \$100. Societal welfare was said to increase if total utility increased, but does it? If a given level of consumption produces the same level of utility for everyone we can easily compare the utility of individuals.[18] If we assume, as seems reasonable, that the more one already consumes, the less the additional pleasure generated by one more dollar's worth of consumption, then it is quite likely that the gain in utility for A that comes from 1 percent increase in consumption is less than the loss in utility for B that comes from a 50 percent fall in consumption. So in this case, despite the increase of \$10 in total consumption, we would say that total utility has decreased and, by the utilitarian definition, economic well-being has fallen.

If average standards of living are rising only because the very rich are becoming fantastically richer while everyone else is growing steadily poorer,

then the utilitarian measure of economic well-being seems reasonable. But it also carries the implication that, because rich A receives less pleasure from his last $100 of consumption than poor B does, total utility would be increased by a redistributive transfer of $100 from A to B, and increased still further by a further transfer of $100. Indeed, the economic well-being obtainable from a given total income is maximized by redistributing income until all incomes are equal.[19]

At this point many begin to draw back and question whether human beings are such that we all get the same satisfaction from the same dollar value of consumption. Perhaps A is a person of exquisite sensibility who really appreciates the nuances of fine wines, while B is a boor who can barely discern the difference between cider and beer. Would not redistribution from A to B then decrease the total utility of society? Perhaps, but it might also be the case that A is the boor and B has the refined tastes, in which case maximizing total utility implies that B should get even more. Imagining the arguments that A and B could have, as each attempts to convince the other of the intensity of their pleasure, might be entertaining, but we also know that this is an argument without end.

The utilitarian measure of economic well-being thus contains a fatal flaw; we cannot measure individual utility in any objective way, and we cannot be sure that the unmeasurable concept of utility is related, in the same way for all individuals, to those things we can measure, such as income or wealth. Yet even if we could measure the utility individuals get from their consumption according to the preferences they now hold,[20] should we consider economic well-being to be the total of individual utilities?

One reason for not accepting a utilitarian argument is that although it is convenient, in economic theory, not to inquire into the origins of preferences, in practice preferences often adapt to changes in circumstances. Where incomes are low, aspirations are also often low. When incomes rise, new tastes often emerge. It may be true that A gets more pleasure from eating butter than margarine while B is indifferent, but before we give A all the butter and allocate B the margarine, should we not ask whether B has ever tasted the difference? If individuals typically learn to adjust their desires in order to minimize their disappointments, then the intensity of their preferences, at any point in time, will depend on how much income they have had in the past. Can it be justifiable, even if A now gets more pleasure from $1 than B, to allocate more income to A if the reason for A's greater pleasure is that he has always had a larger income?[21]

Furthermore, some of our tastes are consciously chosen or, more exactly, we often choose between experiences knowing that the experiences in question will alter our future tastes. People choose whether to experiment with heroin, whether to have a casual affair and risk getting involved, and whether to sign up for art appreciation classes. But as this list of activities

shows, our society does not consider all activities that generate utility to be morally indistinguishable — even if they do not involve harm to other individuals. As moral personalities we are considered capable of making choices about the preferences we develop and, which as consumers, we seek to satisfy.

Utilitarianism, however, does not recognize that preferences may be adaptive, that tastes may be consciously manipulated (by oneself or by others) or that some harmless desires are judged by society to be illegitimate. Neither do utilitarians accept that the total utility of a society can be anything but the sum of the utilities of the individuals who make up that society or that we should evaluate the utility of particular groups (e.g., males) as, ipso facto, more important than that of some other groups (e.g., females). These positions are not held because utilitarians consider them to be descriptively accurate judgments of society as it *is*; rather they are ethical judgments about how individuals and society *should be*. The classic liberal position is that we should not discriminate among individuals, that we should not recognize the legitimacy of disutilities caused by envy or malice, and that individuals are the best judges of what will yield the greatest satisfaction in life and, unless doing so causes harm to others, should not be restrained from pursuing their own happiness.

Justice as Fairness

The utilitarian conception of economic well-being therefore has implicit in it an ethical position that deserves the greatest respect. Even so, respect for the individual can equally well be conceived of as respect for the right of individuals to use the resources they have available in the ways they see fit (without causing harm to other individuals). Moreover, concentrating solely on the sum of utilities ignores any issue involving the distribution of utilities, and this omission may conflict with other ethical notions, such as ''justice'' or ''fairness.'' An alternative measure of economic well-being, recently restated by John Rawls, is based on the argument that economic ''progress'' should be assessed in terms of its impact on the least well-off members of society, where ''least well-off'' is defined in terms of the resources available to produce utility rather than in terms of utility.[22] Economic well-being can therefore increase only to the extent that the resources available to the least advantaged members of society increase.

The basis for this argument is the idea of fairness, as expressed in the ancient moral precept, ''do unto others as you would have them do unto you.'' In any society, economic and social rewards are distributed according to the ''rules of the game,'' which reward some attributes (such as intelligence or having rich parents) and penalize others (such as being physically disabled). Rawls argues that to judge the level of justice in a society one should ask, ''Would I choose the 'rules of the game' that operate in that society if I did not know in advance how I would be affected

by those rules?'' For example, one of the rules of the game in Canada is the absence (everywhere except Quebec) of succession duties or inheritance taxes. In practice, our attitudes to this rule are likely to be coloured by our knowledge of whether we are likely to receive an inheritance or to pass one on, but Rawls would argue that we should make judgments about the fairness of rules as if we were behind a ''veil of ignorance'' as to whether we would benefit personally from the absence, or otherwise, of inheritance taxes.

Clearly, if we did not know whether we were going to be poor or rich, we would be more likely to be concerned about poverty than if we knew all along that economic disadvantages are suffered by others. Indeed, Rawls goes further and argues that a reasonable person choosing the rules of the game from a position of ignorance as to his/her own attributes would choose the set of social institutions that minimizes the disadvantages suffered by the least well-off members of society.[23] A just society is, in Rawls' conception, organized according to two basic principles:

1. Each person has an equal right to the most extensive scheme of basic liberties compatible with a similar scheme of liberties for all.
2. Social and economic inequalities are to satisfy two conditions: they must be (a) to the greatest benefit of the least advantaged members of society; and (b) attached to offices and positions open to all under conditions of fair equality of opportunity. (Rawls, 1982, p. 161)

There are deep religious roots to the idea that the progress of society should be evaluated in relation to the decency of life of the poor rather than the comforts of the rich, and by the dignity it offers the disabled rather than the rewards it gives to the able.[24] Moreover, because the ''least well-off'' are, by this definition, those who were born disadvantaged and never managed to escape their disadvantages, we cannot use the upward social mobility of some to excuse the continued disadvantage of others. The Rawls criterion therefore asks us to measure economic well-being by examining the resources available to the poor, i.e., those with the lowest lifetime expectations of income and wealth.[25]

Measuring the resources available to the least well-off raises the issue of whether we should consider absolute changes in the income of the poor or changes in their incomes relative to those of the rest of society. Underlying the first approach is the idea that poverty is not having enough goods and services at one's disposal; hence any increase in the goods and services available to the poor means they are now less poor, i.e., better-off. Underlying the second approach is the idea that poverty (at least in the developed countries) really means falling short of the norms of society, being excluded from normal social intercourse. If a poor person's income increases by 1 percent while all other incomes increase by 5 percent, the poor person has more income but still falls further behind what ''ordinary'' people have. Economic growth in which some income trickles down to

the poor, but in which they continue to fall further and further behind the mainstream of society is, in the relative conception of poverty, growth in which their relative poverty, their exclusion[26] from society, increases. We can therefore define two rather different versions of the Rawls measure of economic well-being:

1. the changes, over time, in the lifetime incomes of those with lowest lifetime incomes; and
2. the changes, over time, in the ratio of the lifetime incomes of the poor to the lifetime incomes of "average"[27] Canadians.

A Compromise Measure of Social Welfare

The utilitarian and Rawls criteria represent alternative proposals for adding together the gains and losses of individual members of society into an aggregate measure of the economic well-being of society. The utilitarian criterion — the sum of individual utilities — is completely unconcerned with the position of the least well-off, except insofar as their utilities are reflected in the general total. The Rawls criterion is concerned solely with the resources of the most disadvantaged, whether expressed in terms of the lowest money incomes (i.e., absolute poverty) or the relative incomes of the poor (i.e., relative poverty or income inequality). Both criteria embody values that deserve our respect, and it is natural to ask for a compromise measure of economic well-being.

A compromise measure would weight increases in income that are received by the poor more heavily than increases in income that are received by the non-poor, but would still give some weight to the incomes of the non-poor. Even if the incomes of the least well-off fell, if the increase in the incomes of the rest of society was large enough, we might conclude that, on balance, economic well-being had not fallen. This implies that society is willing to trade off the incomes of the poorest and the average income of the rest of society. The implicit ethical issue is the rate at which such trade-offs are made (i.e., the relative weights attached to the incomes of rich and poor when they are added up to measure economic well-being).

Indeed, even if individuals were choosing a "fair" distribution of income from behind a veil of ignorance as to their own place in the distribution of incomes, they might still be willing to trade off the chance of a somewhat lower income (if they turned out to be the least well-off member of society) against the chance of a somewhat higher income (if they turned out to be an "average" member of society). Only if we assume that a reasonable person would not make any such trade-off does justice-as-fairness imply the criterion of concentrating solely on maximizing the resources of the least well-off. If we assume that reasonable people would be willing to trade off the minimum living standard they might expect if unfortunate

against the chance of a higher income if they were fortunate, then justice-as-fairness would also imply the "compromise" measure of economic well-being.[28]

We are, however, left to our own value judgments about the crucial issue of how much more attention a measure of economic well-being should pay to the economic progress of the poor than to the advances of the rich. Economists can assist in the discussion by doing "sensitivity analysis" — showing how particular measures of economic well-being are affected by the application of somewhat different weights to the economic gains and losses suffered by different economic groups. However, the degree of attention we pay to the problems of the poor is essentially an issue of moral values.

Summary

Since some people win and some lose as economic events unfold, assessing whether the economic well-being of "society" has increased or not requires us to weigh the gains of the winners against the losses of the losers. There is an unavoidable ethical issue involved in saying whose gains and losses should be counted as "more important" — the measure of economic well-being we adopt should be consistent with an ethics which we can defend.

Utilitarians argue that economic well-being increases if the *total utility* of the members of society increases. We cannot use total income as a proxy measure for total utility since we cannot know if the increased pleasures of income gainers are, in fact, greater than the pains of income losers. In addition, concentrating solely on the *total* of utilities implicitly says that the fairness of the *distribution* of utilities is not important.

If we didn't know whether we, personally, would have to live on the incomes that poor people receive, we might well be more concerned with how low those incomes were. The Rawls conception of justice-as-fairness argues that a just society will maximize the resources available to its least well-off members. One measure of economic well-being is, therefore, simply to examine the lifetime incomes of the poor. If poverty is an absolute concept, economic well-being increases if and only if the incomes of the poorest increase. If poverty is better perceived as relative deprivation or exclusion from the mainstream of society, then economic well-being increases if and only if the incomes of the poorest rise *relative to* those of "average" Canadians.

A "compromise" between the utilitarian and Rawlsian ethical emphases is to assign greater, but not exclusive, weight to changes in the incomes of the poor than to changes in the incomes of the better-off. One cannot avoid choosing some set of weights to assign to the income gains and losses of the poor versus the income gains and losses of the rich, but the crucial issue is the degree of emphasis one gives to the former relative to the latter.

Consumption over an Individual's Lifetime

Variability in Incomes and Individual Insecurity

Individuals differ in their total lifetime consumption and also consume different amounts in different years of their lives. Since income flows can vary considerably from one year to the next, and capital markets are far from perfect, consumption is often constrained by income. Hence a dollar's worth of consumption may well yield a different amount of utility in one year than in another. As a result, adding up the utility of consumption in different years to arrive at a measure of the lifetime welfare of an individual is not straightforward. It is reasonable to suppose that people's preferences for different goods change fairly slowly over time and that life-cycle changes, such as the number and age of children, are also fairly predictable. Income flows do not, however, generally match up with consumption plans, since income flows depend upon rates of job promotion, the likelihood of unemployment, the availability of overtime work, etc. and these can be highly variable.[29]

Variability in income flows would not be a problem if people did not mind a feast or famine lifestyle and derived the same pleasure from an additional dollar's consumption, regardless of the year in which it was received. Alternatively, if "perfect" capital markets were available, an individual could spread consumption evenly over a lifetime by borrowing or dissaving in years of low income and by saving or repaying loans in years of high income. In this case, the (steady) flow of consumption would effectively be divorced from the (variable) flow of income, and we could estimate the value of a stream of consumption by calculating its expected present discounted value over a lifetime. If capital markets were perfect, individuals would be able to predict their future incomes and to finance the same program of consumption from a variable or from a steady stream of income, as long as the present discounted values of each were the same. Income variability and uncertainty, or what is commonly called "economic insecurity," would then have no economic cost to individuals.

However, the assumption of perfect capital markets is rather strong. It requires that the rate of interest paid when borrowing be equal to the rate of interest received when lending; otherwise, people could not finance the same consumption from a variable income as from a steady income. It assumes that future inflation is fully anticipated and reflected in nominal interest rates. It also assumes away the problem of bad debts, even though a cynic would say that the way to maximize your lifetime consumption is to maximize the debts you have at death. In real capital markets, lenders must always assess the credibility of a borrower's pledge to repay. This credibility is enhanced if a borrower has substantial assets to use as security for a loan or if the denial of future credit would be an effective sanction.

Either way, the implication is that those who have few assets or little reason to protect their credit rating are less credible borrowers. Personal loans against the expectation of future labour income are only as good as a person's ability and willingness to repay, which implies those who are judged more likely to become ill or unemployed[30] will face greater difficulties in borrowing.

Private capital markets are, therefore, likely to be especially imperfect for the poor, the old, the sick and the frequently unemployed. Private insurance markets, too, are often infeasible. At any given level of premiums, taking out insurance may pay only for those individuals who know themselves to be high-risk cases. Insurance companies that insure only risks whose expected value of claims exceed the premiums paid will go bankrupt. The recent failure of a Canadian scheme of private insurance against job loss is a case in point. At the high premiums the company had to charge, only individuals who had a very high chance of losing their jobs found it worthwhile to purchase insurance. The company incurred huge losses and soon withdrew from the market.

Social Insurance and the Risk Exposure of Canadians

To some extent, these imperfections of capital and insurance markets are balanced by social insurance programs, such as Canada Pension Plan, medicare and unemployment insurance, in which people even out their real consumption over their lifetimes by paying contributions and taxes while young, healthy and employed and drawing benefits when old, sick or unemployed. Social insurance program designers are generally careful to ensure, however, that the evening-out of levels of consumption is less than complete, in order to maintain an incentive to paid employment — a concern that has been particularly evident in the ongoing debate on unemployment insurance.[31]

However, in that debate the plain meaning of the phrase "decrease the disincentives to paid employment" is to "increase the costs of being unemployed," which necessarily increases the economic insecurity of those workers who might become unemployed. In normal times, most Canadians are unaffected by such insecurities since unemployment is concentrated in particular segments of the population; even in a high unemployment area such as the Maritimes over a third of employees had, in 1981, never been unemployed in their lives.[32] Economic insecurity is, however, of widespread concern when unemployment rates rise.

In terms of aggregate output and total hours worked, an increase from 7 percent to 13 percent in the unemployment rate represents a decrease of roughly 6 percent in paid labour hours, or approximately the same decrease as would occur if everyone left work a couple of hours early on Friday afternoon. But we know that the welfare implications of the two

events are not at all the same, since the psychological, social and financial costs of unemployment can be severe. Ordinarily such costs are felt by only a few, but a large increase in unemployment creates anxieties about whose job will be the next to be lost. The incompleteness of social security programs and the imperfection of capital markets mean that income variability has a cost to individuals, or, to put it another way, that ''security'' is something individuals typically value.

We can also get some idea of the value people place on security by examining attitudes to inflation, since one of the major costs of changes in the rate of inflation is the uncertainty it creates about the real value of incomes and assets.[33] In the United States, the rate of inflation of consumer prices accelerated from 5.8 percent in 1976 to 13.5 percent in 1980 but, as noted earlier, the American people seem to have considered themselves worse off in 1980 than in 1976, despite the 7.6 percent increase in real per capita disposable incomes.

Summary

Since individuals, in general, prefer to avoid risk, the more uncertainty and variability there is in individual incomes, the less will be the total welfare created by a given level of national income. Imperfect capital markets and incomplete social insurance programmes mean that individuals' consumption plans are constrained, to some degree, by their income at any point in time. ''Security'' of real income flows is something people value. Estimates of economic welfare such as the present value of consumption should therefore be adjusted to reflect the insecurity and uncertainty of income flows.

Policy proposals which increase the risk exposure of Canadians (for example, the curtailment of coverage under public medical insurance) promise a benefit, greater economic efficiency, and carry a cost, greater insecurity. One's evaluation of such proposals depends on *both* the credibility of the promise of greater efficiency and the relative value one places on the costs in economic insecurity that it entails.

Measures of Consumption and Bequest

The Valuation of Current Consumption

Even if we agree that accumulation and consumption are both part of economic well-being, and that measures of consumption flows should be adjusted to reflect economic insecurity and inequality, the question remains of how best to measure consumption and accumulation. To say that national income statistics like the Gross National Product do not fully reflect changes in economic well-being is not really a criticism; it has never

been claimed that they measure all of economic well-being, just that they measure a very important component of economic well-being that is amenable to influence by economic policy. Indeed, when national income accounting was becoming established in the 1930s and 1940s, the major economic problems of the time were the underutilization of capacity during the Depression and the expansion of productive capacity during the war. In this context, focussing attention on production for the market was arguably to focus on the most important part of economic well-being.

With a few exceptions (such as the imputation of a value for ''rent'' of owner-occupied housing) national income accountants stop ''at the door of the household'' and attempt to record the final value of production absorbed, and income generated, by market transactions. Since such a large fraction of economic activity passes through markets, statistics such as GNP will always be needed, but it is worth noting that the National Income Accounts do not capture all market transactions. In principle, the National Income Accounts should include the retail value of sales of marijuana as well as the retail value of alcohol sales and they should count the value of services rendered by moonlighting electricians as well as the reported activities of construction firms. The informal economy of illegal goods and unreported (and untaxed) transactions[34] is not counted in our measures of GNP growth, and estimates of its size are highly uncertain.[35]

However, consumption flows as recorded in national income accounting and consumption flows as we would want to record them for a measure of economic well-being differ in more important, conceptual ways. Leisure, for example, is clearly a part of our economic well-being. If the standard work week increased from 40 hours to 60, the Gross National Product would increase but Canadians would undoubtedly feel worse off. National Income Accounts do not pay any attention to time not spent in paid employment; this implicitly places a zero value on both leisure and ''household production,'' or production that does not pass through the market. If I do volunteer work, help my brother paint his garage or mind my own children, the activity escapes notice by national income statisticians, but if I were to charge for my labour it would count as an addition to national income.

If hours of leisure or the value of household production were constant over time, their omission would not affect the measurement of trends in economic well-being. However, such trends as the increased participation by married women in the paid labour force have both benefits to families (greater money incomes) and costs (less time for productive household activities such as child care). National income, as currently measured, counts the benefits but ignores the costs and, for this reason, would tend to overstate improvements in economic well-being. On the other hand, increases in the number of paid holidays and decreases in standard hours of work represent increases in economic well-being that are not counted in national income per capita.

There are arguments as to the best method of placing a value on household production (e.g., does meal preparation have a value equal to the cost of purchasing meals or the wage the cook could earn in the labour market?) As a consequence, estimates of its total value range from 31.6 percent to 59.5 percent of money GNP in the United States and Canada.[36] One early estimate of the total value of leisure in the United States was that it was about equal to the total value of money GNP, or about twice the value of the consumption of marketed goods and services.[37] Using a different methodology, Usher argued recently that over the period 1926–74 real consumption per capita in Canada of marketed goods and services grew at a compound rate of 2.49 percent, but imputing a value for increased leisure raises the rate of growth of per capita consumption to 3.37 percent.[38]

The concept of consumption as used in national income accounting is that of the final absorptive use of economic resources. This concept makes a great deal of sense for purposes such as modelling the behaviour of the market sector and keeping track of the flows and uses of productive resources, but it is not necessarily the case that people derive utility from a final absorptive use of resources. The expenses individuals incur in commuting to work are, for example, counted as part of the consumption of households, but it is arguable that they are "intermediate inputs" — expenditures that, like the heating and lighting of offices, have to be incurred in order for labour to work productively. A more serious issue arises in the treatment of government consumption of goods and services. Some collective expenditures (e.g., public concerts) are for goods that produce pleasure, while others (e.g., defence) are not. Indeed, if anything, guns and missiles are "bads" rather than "goods," which governments purchase in the hope of avoiding something worse. In this sense defence expenditures are also an "intermediate input," and it is illusory to think we are "consuming more" (in the sense of increasing well-being) as defence expenditures rise. Presumably the benefit of defence is "national security," and its costs are the resources it consumes plus the chance of nuclear catastrophe. Increased expenditures may not mean that we get more national security, just that national security is more expensive.

Regrettable necessities come in all shapes and sizes, and just how to treat them remains a controversial issue in the literature.[39] Under current conventions, the consumption by governments of more police services in response to higher crime rates is considered just as much "consumption" as holidays in the Bahamas. But if increased consumption over time takes the form of police services rather than holidays, it is unlikely that people will feel better off.

Nevertheless, the welfare of individuals clearly does increase if they can enjoy consumption over more years as well as if they enjoy more consumption per year. Increased life expectancy has accompanied economic development throughout the world, but placing a value on these extra years

of life as part of a measure of economic well-being obviously raises difficult issues. Since 1931 life expectancy at birth in Canada has increased by about 10 years for men and 14 years for women. Making several specific assumptions about the utility individuals get from consumption and from a lower risk of mortality, Usher (1980) argued that this was equivalent to an additional increase in per capita consumption of 0.5 percent per annum.

Part of the decline in mortality doubtless came about because of the eradication of communicable diseases such as smallpox and tuberculosis, but public health expenditures illustrate the problems that can arise if we rely solely on market prices as a valuation of social benefit. The private benefits to me of vaccination against a communicable disease are less than the social benefits vaccination produces; not only do I gain immunity, I also lessen the chances that I will transmit the disease to someone else. If enough people are vaccinated, the disease will die out, which is a benefit to everybody. We cannot value the benefits of vaccination as the expenditures private individuals would be willing to make, because there is a temptation for each of us to let others pay the necessary costs and to benefit from their expenditures. Where social benefits diverge from private benefits, or where a benefit available to anyone is effectively available to everyone, uncoordinated private purchases will fall short of the socially desirable level. Governments have intervened to provide public goods such as environmental protection, public parks, crime-free streets, and public health services, but how do we value the benefits of such expenditures? In practice, such expenditures (as well as those on defence) are not seen as public consumption and are valued at the cost of the inputs they use. This approach is known to be unsatisfactory, but market prices for the outputs (e.g., clean, safe streets) are unavailable. Moreover, what people say the outputs are worth to them may be distorted by how likely it is they think they will have to pay.

Per capita consumption is simply total consumption divided by total population, but the total utility derived from consumption depends on how that population is combined into households. Two may not be able to live as cheaply as one, but they can save money by moving in together. Larger households enjoy economies of scale; people can share some costs, buy in bulk and pay lower rents per person. The rate of household formation is influenced by the age structure of the population (as when baby-boom children reach adulthood and start new households), by social trends (such as divorce), and by income levels (e.g., youth or older people who can afford the privacy of their own dwelling). The long-run trend in Canada is for smaller households, but in measuring economic well-being over time we should adjust for this change in household size. To compare like with like we should examine effective per capita consumption and deflate the gross consumption of each household by a household

equivalence scale measuring the difference in the effective cost of living of individuals residing in households of a particular size.[40]

The imputations and adjustments already mentioned — for the activities of the informal economy, household production, leisure, longevity, intermediate consumption, and household size — all have their difficulties, but there has been more success in estimating their magnitude than in estimating the importance of changing job characteristics for economic well-being. For each of us, the net benefits of paid employment are the pleasures we derive from our pay plus the joys (or minus the sorrows) we get from our jobs. If, for example, the speed of an assembly line is increased, the workers on that line will be worse off, unless wage rates rise. In the long term, there is the likelihood that we will ''spend'' part of the potential growth in our money incomes on improving the quality of our work life, i.e., by accepting slightly lower increases in money incomes in exchange for such improvements as longer coffee breaks or more comfortable offices. Something of this sort probably does go on, but attempts to measure the differentials in pay that compensate workers for different characteristics of jobs have not been very successful.[41] Similarly, changes in the quality of existing consumption goods and the development of new goods (such as video recorders) produce changes in utility whose magnitude is rather difficult to estimate.[42] It is unlikely that we will ever be able to claim complete coverage in measuring the economic well-being that comes from consumption, but we can attempt to be more comprehensive and to identify the major sources of variation over time.

The Valuation of Net Savings

Similarly, in measuring changes in the bequest this generation will leave to the next, we can develop more comprehensive, but not complete measures. As noted earlier, society accumulates stocks of privately owned, publicly owned and unowned assets for the benefit of future generations. Currently we count only part of owned assets and none of unowned assets, because the concept of capital accumulation is restricted to increments in the tangible capital of enterprises and governments and increases in the housing stock. This concept of capital has the enormous advantage of concreteness[43] but there is a real question as to whether it is a full indicator of the value of the bequest we leave to future generations.

As individuals, we will bequeath to our heirs a stock of consumer durables. Indeed, the acquisition of housing and consumer durables is the main form of saving for the vast majority of Canadian (and American) households,[44] but national income accounting adopts the convention that the purchase of consumer durables by households is consumption, not investment. It has long been recognized as anomalous to count an automobile purchased by a car-rental firm as an investment and a similar one

purchased by a family as consumption, but it is not often recognized how large the consumer durable sector is, relative to total investment. Over the decade 1973 to 1982 inclusive, Canadians purchased an annual average of $13.185 billion (1971 dollars) worth of consumer durables — considerably more than was spent on machinery and equipment by Canadian industry (an annual average of $9.864 billion) and some 55 percent of total investment, as normally calculated.

If there is anything to the popular notions of the information society and knowledge-intensive goods, presumably it is the idea that instead of larger machines needing fewer workers, investment now often takes the form of research and development of new products and processes using highly skilled labour. If this is the case, an increasing fraction of society's stock of productive resources may be produced by research and development expenditures or embodied in the skills of the labour force. These types of investment are not the tangible capital whose accumulation we record in national income accounting. Clearly the valuation of the stock of R&D or of human capital poses huge problems. (For example, does university education produce useful skills or credentials that enable people to jump ahead in the job queue?) Nevertheless, if one believes in such ideas as human capital, their inclusion in measures of capital accumulation can make a considerable difference.

A recent U.S. study of the period between 1946 and 1976 argued that gross private domestic investment (i.e., housing and the tangible capital of business and government) was only about 20 percent of gross domestic capital accumulation more broadly conceived to include also the accumulation of consumer durables, training, and R&D. Furthermore, the slowdown in the rate of investment perceptible from the narrower measure is reversed if we look at the broader measure of gross domestic capital accumulation, which rose over the period as a fraction of total incomes.[45]

In addition to tangible structures and machines and intangible skills and knowledge, Canadians own large stocks of natural resources. The depletion of these resources certainly represents a diminution of the resources available to our descendants, but the net change in the value of our bequest depends on what is happening simultaneously to resource prices. If resource prices are rising on international markets, Canadian stocks of natural resources could be traded for more of the goods of the rest of the world. Over the 1970s, Canadian both consumed large quantities of oil and benefitted from large capital gains in the value of the oil left in the ground.[46] We do not now compute the net increment in the value of natural resource stocks but the information required to do so — resource prices, resource stocks and estimated extraction costs — is potentially available.

By contrast, the information needed to compute the value of unowned resources such as clean air is very difficult to obtain. Since these goods are unowned, we do not observe direct market exchanges where people

express the value they place on these goods. We can draw indirect inferences, for example, by comparing the prices of similar houses in areas with and without air pollution; but these estimates are subject to some uncertainty and rely on the adequacy with which they control for other variables that could produce the same effect. To the extent that society constrains itself to zero change in specific aspects of the environment (i.e., a preserved national heritage), the problem of estimating the net value of changes in environmental conditions is simplified. But even if the bottom line on the environmental account is always imprecise, it would be misleading to refuse to consider environmental changes and thereby implicitly assume that the costs and benefits of environmental change are always zero.

Positional Goods: Keeping Up with the Joneses

In considering the consumption and bequest of goods, we have, up to this point, implicitly accepted the proposition that the more goods people consume, the more utility they will have. However, if the goods we consume are "positional," that is, they serve mainly to rank us in society, then total welfare may not increase as average incomes increase. Rising incomes may enable us, for example, to purchase more powerful cars and motorcycles, but if the major reason people want more horsepower is to enable them to leave everyone else behind when the traffic lights turn green, then increased total expenditure will not produce increased total utility. In 1984 motorcycles were available, for about $6,000, that could accelerate from rest to 120 miles per hour in 11.3 seconds, with top speeds of over 145 miles per hour. But the only real point in having such a machine is to be "king of the road" — a desire that several hundred dollars and 55 horsepower could satisfy with total adequacy in the 1960s, but an ambition that now needs several thousand dollars and 120 horsepower to fulfill. Moreover, it is certain that even more powerful and sophisticated machines will be on the market in a few years. Only one will ever be the fastest; has total utility increased as expenditure has risen?

The competitive aspects of consumption can be much more conveniently quantified for automobiles and motorcycles (e.g., in 0-to-60-mph times) than for good wines, attractive clothes or fine works of art. Even so, we cannot really doubt that part of the reason why people want these things is to rise a bit above the common herd, wherever that might be. The implication, for which there is some empirical evidence,[47] is that individual happiness depends on one's economic position relative to the rest of society, and that total happiness does not increase as the average of all incomes rises.[48]

Summary

In measuring the effective consumption flows of the current generation one would like to adjust consumption flows for changes in household size, adding together: (1) the recorded consumption of marketed goods and services; (2) unrecorded consumption of marketed output; (3) the value of non-marketed or "household" production; (4) the value of leisure; (5) the collective consumption of public goods; and (6) the benefits of increased longevity of life. From this total one should subtract increases in the costs of commodities that are "means" rather than "ends" (e.g., the cost of commuting to work).

The current generation accumulates capital for the benefit of future generations only partly in the form of housing stock and the tangible equipment and structures of business and government. Households also acquire consumer durables and training; firms and governments acquire knowledge of new processes through research and development. A comprehensive statement of net accumulation should include these forms of saving as well as net changes on natural resource account (additions to proven reserves minus depletions plus capital gains or minus capital losses) and some estimate of environmental degradation.

If the consumption of goods in advanced economies is primarily a way of ranking people and if people care mainly about their rank in society, (whether they can "keep up with the Joneses"), then increases in the general level of incomes will not change rankings and will not increase happiness. To the extent that goods are "positional," increases in their production and consumption will overstate the rate of growth of economic well-being.

An Index of Well-Being?

A Single Index of Well-Being?

In the first three sections of this paper I argued that the economic well-being generated by a given total of consumption will be less (a) if it is obtained at the cost of the impoverishment of future generations; (b) if the poverty of low-income groups and the degree of economic inequality increases; and (c) if individual year-to-year income flows become more unstable or insecure.[49] In the fourth section we discussed the problems of measuring consumption and accumulation. The issue that remains is how to summarize information on economic well-being for the purposes of policy debate.

One possibility is to look for a single, unambiguous indicator of economic well-being but, as Adler has argued, "There is an almost unanimous agreement among social indicator workers that it is neither practical nor theoretically desirable nor analytically sensible to have one

overall measure of welfare'' (1982, p. 128). Any single measure of economic well-being would have to add up the various components of economic well-being as, approximately speaking, a weighted average of its components. For example, if a_1, a_2, a_3, and a_4 are the weights we assign to each component, we could calculate:

$$\begin{aligned}\text{Economic well-being index} = {} & a_1 \text{ (effective per capita consumption flows)} \\ & + a_2 \text{ (net accumulation for future generations)} \\ & + a_3 \text{ (poverty + inequality of current generation)} \\ & + a_4 \text{ (insecurity of income flows)}\end{aligned}$$

Any single number that purports to indicate trends in economic well-being will not only have implicit in it a series of indices of consumption, accumulation, inequality and insecurity but will also implicitly assign weights to each. For example, the use of per capita national income as an indicator of economic well-being implicitly sets the weights a_3 and a_4 (on poverty-inequality and insecurity, respectively) equal to zero. Per capita national income is a measure that is unaffected by trends in poverty or inequality or by changes in individual income variability. In addition, as already noted, the national income concept most widely used today captures only part of our flows of consumption and only some of the changes in the stock of productive resources.

Per capita national income has, however, the considerable virtue of apparent simplicity. Although difficult choices of measurement may be submerged and the ethical issues surrounding bequest and inequality valuation ignored, the average national income is a number that is often used in policy debates. It corresponds in a rough sort of way to the money income of households and can be understood on an intuitive level, and therefore debated, by many people — an enormous advantage in a democratic society. Public debate might well be improved if we could consider explicitly some of the aspects of economic well-being that are obscured by average national income or if we could consider separately each aspect of well-being and assign it the weight each of us considers appropriate, but public debate will not be assisted by an incomprehensible deluge of esoteric statistics.[50]

The Dimensions of Well-Being

There are, however, four main dimensions or indices of economic well-being: the aggregate flow of effective consumption; net additions to the stock of productive resources; poverty/inequality of lifetime income; and economic insecurity in year-to-year income flows. If there is a choice between broad policy packages, it is likely that some policy packages will

produce superior outcomes as measured by one index and inferior outcomes as measured by other indices. Our choice of package will depend partly on the relative weights we ascribe to each aspect of economic well-being. Disagreements on such issues as how to measure poverty or effective per capita consumption are of a different level of complexity than disagreements over how much weight should be given to the claims of the poor as against the growth of average incomes. Since the latter sort of disagreement is fundamentally ethical in nature, and each voter has somewhat different values, perhaps the best approach is to present essential information clearly and allow the political process to choose.

The public debate about whether a particular policy package would make society better off would be assisted by a clear statement of its implications for the following dimensions of well-being.[51]

1. The level of effective per capita consumption. Because estimates of consumption of marketed and unmarketed goods and services embody different sorts of uncertainties, this could be usefully divided into:

- (a) effective per capita consumption of marketed goods and services; and
- (b) effective per capita consumption of household production, leisure and other unmarketed goods and services.

2. Net societal accumulation of productive resources over the policy period. Again, this will be a sum of estimates of varying certainty:

- (a) net accumulation of tangible capital, housing stocks and consumer durables;
- (b) net accumulation of training and R&D investment;
- (c) net changes in the value of natural resource stocks;
- (d) environmental costs; and
- (e) net foreign debt.

3. Poverty and economic inequality, the most generally comprehensible summary statistics for which are:

- (a) the shares of the poorest 20 percent, richest 20 percent and middle income quintiles in the lifetime incomes of their cohorts;
- (b) the fraction of the population having an average annual income below a poverty line of one-half the median income;[52] and
- (c) the average amount of income it would take to raise all poor households to a poverty-line income.

4. The security of individual year-to-year income flows, of which possible indicators are:

- (a) the level and rate of increase of unemployment;
- (b) the percentage of the labour force that can expect large (20 percent plus) variations in annual real earnings; and
- (c) the change in annual inflation rates.

The Undesirability of Anonymity

In addition to these indices, the incidence of policy impacts is also important. Economists often propose that it should not be and argue for the anonymity of outcomes as part of their methodology of policy evaluation. They do so on the grounds that if we are willing to propose a policy that gives benefits to 95 percent of the population at the cost of imposing losses on the remaining 5 percent of the population, then we should be prepared to defend that policy regardless of who the winners and losers at any particular income level happen to be. This is a principled position to take, but in practice it makes a considerable difference whether the 5 percent who lose from a particular policy all share a characteristic that, on some other grounds, has a claim on our sympathy. If we look only at the average incomes of the people who might lose under a particular economic policy, we will not be able to tell whether the losers are drawn from across Canada, whether they all reside in Newfoundland or whether they are all paraplegics. Would we in fact be as comfortable with a policy that reduced the incomes of Newfoundlanders as with one that penalized paraplegics?

In fact, the "social welfare function" of Canada is a complex thing, one that is affected by many variables. An index of economic well-being — even one that takes consumption, accumulation, inequality and insecurity into account — is inevitably a simplification. To ensure that this simplification has not led us astray, policy makers want to know both the aggregate effects of policy changes and the incidence of those effects within the population. In examining the incidence, as well as the aggregate effects, of policies they want to check that a policy, even one that increases economic well-being as defined above, does not also impinge on some other value society holds dear. For this reason we often see, in policy documents such as the annual budget, calculations that indicate the impact of policy changes on "ideal types" of households, for example, a middle-income Ontario family with father employed full-time, mother employed part time, and two children aged 9 and 6. The problem is that the number of ideal types increases rapidly as soon as factors such as province of residence, number of children, and salary levels are considered. In addition, the difficult cases in policy analysis are not usually the average household but the non-average — very large households, single-parent families, disabled heads of households, and so on.

This suggests that we should put the question a little differently and ask which households do best and worst out of a particular policy or set of policies. We may, for example, predict that a policy of continental free trade will raise average incomes by *x* percent, but we know that within this average of all outcomes there is a considerable range, with some households gaining far more and some actually losing. Given this, we might well ask, "What are the characteristics, and the gains and losses, of the

10 percent who do best and the 10 percent who do worst under this policy?''.[53] It may turn out that the losers share a characteristic (e.g., sex), which means that redistribution between groups offends our collective conscience. In that case we may wish to reconsider a policy or develop some sort of compensation. Economic policies have aggregate effects only because they affect specific individuals. To defend a policy we must therefore be prepared to justify *both* the aggregate distribution of gains and losses and the particular incidence of those gains and losses.

Summary

The economic well-being generated by a given total of consumption will be less: (a) if it is obtained at the cost of the impoverishment of future generations; (b) the greater is the poverty of low-income groups and the degree of economic inequality; and (c) the more unstable or insecure are individuals' year-to-year income flows. Any single measure of economic well-being has, in some way, to assign a weight to the various components of economic well-being. For example, if a_1, a_2, a_3, and a_4 are the weights we attached to each component, we could calculate:

$$
\begin{aligned}
\text{Economic well-being index} = {} & a_1 \text{ (effective per capita consumption flows)} \\
& + a_2 \text{ (net accumulation for future generations)} \\
& + a_3 \text{ (poverty + inequality of current generation)} \\
& + a_4 \text{ (insecurity of income flows)}
\end{aligned}
$$

The use of per capita national income as an indicator of economic well-being implicitly sets the weights a_3 and a_4 equal to zero, since per capita income is unaffected by trends in poverty or inequality or by changes in individual income variability. Moreover, the national income concept in most widespread use today captures only part of our flows of consumption and only some of the changes in the stock of productive resources.

Since different people assign different degrees of importance to the various components of economic well-being, no single measure of the whole will satisfy everyone. Discussion of economic policy would, however, be assisted if the implications of policy for each dimension of economic well-being were clearly stated, i.e., for:

1. *The level of effective per capita consumption:*
   (a) effective per capita consumption of marketed goods and services; and
   (b) effective per capita consumption of household production, leisure and other unmarketed goods and services.

2. Net societal accumulation of productive resources over the policy period:

(a) net accumulation of tangible capital, housing stocks and consumer durables;
(b) net accumulation of training and R&D investment;
(c) net changes in the value of natural resource stocks;
(d) environmental costs; and
(e) net change in level of foreign indebtedness.

3. Poverty and economic inequality, the most generally comprehensible summary statistics for which are:

(a) the shares of the poorest 20 percent, richest 20 percent and middle income quintiles in the lifetime incomes of their cohorts;
(b) the fraction of the population having an average annual income below a "poverty line" of one-half the median income; and
(c) the average amount of income it would take to raise all poor households to a poverty-line income.

4. Indicators of the security of individual year-to-year income flows:

(a) the level and rate of increase of unemployment;
(b) the fraction of the labour force that can expect large (20 percent +) variations in annual real earnings; and
(c) the change in annual inflation rates.

Aggregate statistics, such as average consumption or overall inequality, cannot, however, tell us *who* it is that is gaining or losing as economic events unfold. Where equity between groups is considered important (e.g., males and females) the incidence of gains and losses on *types* of individuals can become an important ingredient in policy. Incidence analysis, the identification of the types of individuals who gain and lose the most from policy proposals, is therefore a crucial supplement to aggregate indices of economic well-being.

Notes

1. In current dollars, disposable personal income per capita in the United States was \$5,477 in 1976 and \$8,012 in 1980 (in constant 1972 dollars, \$4,158 in 1976 and \$4,472 in 1980). Household holdings of consumer durables increased from a stock of \$488 billion 1972 dollars) in 1975 to \$611 billion in 1980, while the value of residential property went from \$939 billion in 1975 to \$1,066 billion in 1980 (again, in constant 1972 dollars). Total reproducible tangible wealth increased from \$3,220 billion to \$3,705 billion. In short, average real incomes and average real wealth (as well as the most widely held forms of wealth) rose over the period 1976 to 1980.

   The median income of families fell, however, from \$23,898 (1976) to \$23,204 (1980), both measured in 1981 dollars. The average of *all* incomes and the median incomes of *families* can move in different directions when family composition and/or the distribution of incomes changes (see the second section of the paper). Furthermore, among family types, only married couple families with two earners had higher median real incomes in 1980 than in 1975 — and this increase in money incomes is a misleading indicator of welfare if it is achieved at the cost of decreases in home-based activities (see the section on measures of consumption and bequest).

In constant dollars, average hourly earnings rose by 2.2 percent between 1976 and 1978 and fell by 7.7 percent from 1978 to 1980. (Family incomes fell by considerably less, over the period 1976 to 1980, as the labour force participation rate of married women rose from 45.1 percent to 50 percent). Hence, a family that derived its income entirely from the labour market and could maintain money income only by supplying more hours to that market might quite reasonably feel less well-off in 1980 than in 1976. See *Statistical Abstract of the United States 1982–83* (U.S. Department of Commerce, 1982), Tables 639, 694, 714, 741, and 717.

2. There are two implicit assumptions here: (1) we are considering only Canadian society, and (2) we are taking population size as determined independently. To consider the measurement of the economic well-being of humanity or the losses in potential welfare of those who will be excluded from Canadian society, by immigration policy or birth control, would require a great deal more space.

3. The optimal amount of saving in any year can be defined as the amount of saving that produces an allocation of resources over time that is both efficient and equitable. By an efficient allocation of resources over time I mean an allocation of resources such that no generation's consumption can be increased without a decrease in the consumption of some other generation. By an equitable allocation of resources I mean a "just" division of available consumption between generations.

4. Capital markets provide signals, via the interest rate, that enable individuals to choose between present income and future income. However, the real income people expect to get in future periods will depend on the prices at which they expect to sell the assets they possess and the prices at which they expect to buy the goods they will purchase. When forward markets exist (e.g., 90-day futures on frozen orange juice), buying and selling by commodity traders ensure that the plans of economic agents are mutually consistent. All agents then have the same expections about prices 90 days from now and, if the market process converges smoothly to equilibrium values, supply and demand can be expected to balance. However, if forward markets do not exist we have no way of knowing whether agents' plans for the future purchase and sale of particular commodities are mutually consistent.

   To be specific, people who purchased cars or built oil-fired electricity-generating plants in 1970 when oil was $4 a barrel knew that they would be buying petroleum products for some years to come. Had there been a comprehensive set of forward markets, they could have bought oil in 1970 for delivery in 1973, 1974, 1975, 1976 and later years. The price of oil for future delivery would have been both a guide to oil buyers — in deciding, for example, whether to buy coal-fired or oil-fired generating stations — and a signal to oil producers as to whether they should retain oil in the ground or explore for more now, in order to supply future markets. As we know, such signals were not available, and decisions were made that were later regretted (e.g., Ontario Hydro built the Lennox oil-fired generating station for several hundred million dollars, but never used it). It is arguable that such inefficiencies in investment and consumption would not arise if market agents could know now what the future prices of commodities will be.

5. Dasgupta and Heal (1979) demonstrate that a sequence economy, even with rational expectations, is in general intertemporally inefficient, because a series of momentary equilibria with myopic expectations, which expectations are fulfilled in the subsequent period, have indeterminate long-run behaviour under competitive conditions. Depending on arbitrary initial conditions, the time path of resource extraction in a competitive economy depends in part on anticipated capital gains to resource ownership (which depends in turn on the arbitrary level of initial prices) and may well be inefficient. As they put it, "the claim that a decentralized competitive environment will ensure an efficient utilization of natural resources is a very tenuous one" (1979, p. 242).

6. Whether the preferences of the current generation are all that ought to count in determining the equity of intergenerational distribution is, of course, a much more complex issue. In this paper we do not consider it explicitly, subsuming the issue in the value of this generation's bequest. It is clear that private decisions might generate an intergenerationally equitable allocation of resources. Indeed, Meade (1966) showed that there exists what he called a "fluke case" in which the savings of parents who save only for their

own life cycle consumption, leaving no bequest to their children, produces Ramsey-optimal capital accumulation over time. Even his "representative individual" model with perfect parental altruism produces, however, many possible intergenerationally sub-optimal capital accumulation paths. Such single-agent models assume away the problem of coordinating the current generation's savings decisions to produce the total capital stock of the next generation, but they still present considerable theoretical difficulties (see Ray and Bernheim, 1983). Decentralized private decision making in general will produce a savings rate that is neither efficient nor equitable between generations; only under very special conditions can we say that there will be an optimal savings rate.

7. Nordhaus and Yohe (1983) note, for example, that forecasts of increasing atmospheric levels of carbon dioxide depend on the interaction of 10 key parameters and present simulations of a thousand possible interactions of these parameters. They conclude that in the median case atmospheric levels of CO_2 will double by the year 2065, with 5 percent of simulations forecasting a doubling before 2035 and 5 percent forecasting a doubling after 2100. Whenever it occurs such an increase will have dramatic "greenhouse" effects on world climate, but most of the readers of this paper will be dead by 2035. All the same, it is this generation that will have to take costly decisions if this gradual process is to be slowed down.

8. At a rate of interest of 10 percent, I am indifferent between receiving \$100 today or \$110 one year from now, because I could invest \$100 received today and, at 10 percent, wait until it accumulates to \$110 in a year. Hence we say that the discounted present value of \$110 in a year's time is \$100, if the interest rate is 10 percent. More generally, the discounted present value of a payment P_t, if r is the rate of interest and t is the number of years one has to wait for the payment, is equal to $P_t/(1+r)^t$.

9. Pearce (1983, Chapter 4) has a basic discussion of the issues involved in "social rate of time preference" or "social opportunity cost of capital" discounting.

10. As an individual, I may evaluate potential consumption at age 60 as worth less than consumption at age 20 because I know that there is a chance I may die in the interim. Analogously, Dasgupta and Heal (1979, Chapter 9) argue for discounting even in the maxi-min and utilitarian intergenerational social welfare function on the basis that there is some chance that the human race may cease to exist within the foreseeable future. This argument for social discounting cannot be right, however, because the reason the human race may cease to exist is that *this* generation may blow itself up in a nuclear war. In their argument, the higher the chance of this occurring, the higher the social discount rate, but it cannot be reasonable that we should penalize future generations, via a lower capital stock, (if we do not blow them up) for the chance that we might have blown them up.

    Aside from this, the ethics of systematically discounting the interests of future generations have often been attacked. In classic early statements Ramsey (1928) argued that discounting arises "merely from the weakness of the imagination" and Harrod (1948) saw it as a "polite expression for rapacity." See also Sen (1961) and Solow (1974).

11. Small changes in discount rates can have large effects on these sorts of numbers. At a 4 percent discount, the value of a dollar in 150 years' time is .279 cents. Pearce (1983) suggests that society should establish a compensation fund to repair any damage caused in future years by the adoption now of least-cost disposal technology. Part of the problem, however, is the vast uncertainty surrounding the future costs of clean-up and the fact that decisions usually involve future risks rather than certainties. The amount that should be deposited in the compensation fund is therefore hard to specify, and it is even more difficult to ensure that what is, in essence, a generation-skipping trust is in fact honoured.

12. Whether market prices at a point in time can be efficiency prices in an intertemporal sense when forward markets do not exist is somewhat dubious (see Dasgupta and Heal, 1979, chapter 8).

13. The distinction between heritage assets and other capital assets left behind by this generation is perhaps exemplified by the difference between the Parliament Buildings and any of the anonymous office towers of downtown Ottawa. Both serve as offices and meeting places, both could last a long while with good maintenance, and both represented substantial investments of labour and materials. Yet Canadians would be indifferent to the

demolition of an office tower and not indifferent to the demolition of the Parliament Buildings, which have become a national symbol. National symbols and shared experiences over generations (e.g., canoeing on northern lakes) are a large part of cultural identity, but how can one put a value on such items?

The assets that conservationists refer to as heritage items generally share two characteristics: (a) with reasonable care, they could yield utility for many generations to come, and (b) they cannot be replaced, for all practical purposes, should they be destroyed. The ''irreversible decision'' aspect of heritage assets distinguishes them from other public goods, whose supply can increase or decrease in accordance with the collective decisions of society. Clean air is a public good that was not valued as highly in the past as it is today, but more stringent regulation can be effective and has, in fact, succeeded in reducing air pollution in many parts of the world. Even in this case, however, there is the possibility that some of the effects of air pollution may be irreversible (e.g., acid rain, which may alter soil chemistry so substantially as to kill northern forests and prevent natural regeneration).

The potential for a stream of utility over infinite time distinguishes fish stocks, fertile farmland and forests (all often claimed by conservationists for our natural heritage) from ore bodies and other non-renewable resources; Dasgupta and Heal (1979) draw a similar distinction between renewable and exhaustible resources. I am not sure that one can put into economic jargon the concern that farmers often feel that good land should not be mined into infertility or the feeling of conservationists that one species should not exterminate another. However, in economic terms, concern over irreplaceability can sometimes be traced to the future ''option'' value of being able to enjoy a good, if one wants to, combined with an uncertainty as to how highly it might be valued by future generations. It should be emphasized that very few people assign heritage items a shadow price of infinity; all that is ever claimed is that their shadow price should be very high, i.e., higher than the price the market currently assigns.

14. ''Option value'' (''I could go canoeing if I wanted to'') can be distinguished from ''existence value'' (''I'd be sorry if there were no more wilderness, even though I cannot go'') although either is difficult to measure empirically. Greenley et al. (1981) present a case study where questionnaire methods were used to estimate option value. Option value and existence value are central to the preservation of other heritage items such as historic buildings or great works of art, but they are peculiarly important to wilderness, which ceases to be wilderness if too many people actually visit it.

    Porter (1982) discusses the evaluation of the benefits of maintaining wilderness using cost-benefit analysis and points out that if wilderness benefits are (through increasing scarcity of wilderness or a positive income elasticity of demand for wilderness) assumed to grow over time, the nature of the decision process between wilderness and development projects changes dramatically. For example, it may be the case that a project should be implemented either now or never, any delay rendering socially undesirable an otherwise desirable use of resources.

15. See, for example, Williams (1983).

16. In a subsequent section we examine the adequacy of measured money income as an indicator of economic welfare. We do not, however, examine in any depth the philosophic arguments surrounding the issue of whether societies should be evaluated with reference solely to the outcomes that individuals within it experience or whether we should evaluate societies with reference to the *processes* that generate such outcomes (see Scanlon, 1982). In judging according to outcomes, in terms of the consequences of economic processes, we are firmly in step with the economic literature on social welfare functions. Indeed the very concept of society's welfare has little meaning from the point of view of contractualist philosophers (e.g., Nozick, 1974). If we argue for a theory of ethics based solely on individual rights, then society's welfare is simply the welfare that results from the exercise of those rights and the maximum welfare of society is the outcome that occurs when all individuals maximize the individual welfare obtainable from their legitimately acquired rights.

    When we evaluate society's welfare as a function only of individuals' levels of utility, on the presumption that individuals maximize utility, we implicitly assign a zero value to the alternatives that were open to individuals but not chosen by them. In economic theory, this idea is known as the assumption of the ''independence of irrelevant alter-

natives''; if I always choose vanilla ice cream over any other flavour, it should not matter to me whether the choice open to me is between vanilla and chocolate or between vanilla and strawberry or indeed if there is a central planner who just allocates me vanilla ice cream. But the availability of alternative choices is a good part of what we mean by ''freedom.'' The processes that can generate certain patterns of economic outcomes vary considerably in their legitimacy (e.g., many people condemn South Africa because apartheid violates widely agreed norms of an acceptable social and political system, but not very many condemn Nigeria, even though both countries have highly unequal distributions of income and wealth). In this paper we ignore the issues raised by the *processes* that generate economic outcomes, on the grounds that these are social and political issues and we are considering here only economic well-being. This is not to argue that such issues are unimportant.

17. The issue we are considering is the measurement of actual economic well-being; potential transfers that could have been achieved with a given total income are therefore irrelevant.
18. More generally, we can compare utility levels to which we can assign a unique number — levels that are ''cardinally measurable'' in the jargon.
19. Note that the conclusion of absolute equality of individual incomes follows only if total income is fixed. If greater incentives, in the form of higher individual incomes, enable faster growth in total national output, then a utilitarian would admit that the existence of some inequalities in income could be justified. The argument for ''inequality-if-growth'' can, however, easily be inverted into the argument ''if no growth then no inequality'' and places the onus on defenders of income inequality to justify each and every income inequality as being no greater than that required to maximize the present value of total utility.
20. See, for example, the work of McKenzie (1983) who advocates the use of the ''money metric'' as a measure of welfare losses and gains and demonstrates how it can be derived from empirically estimated demand functions. However, to estimate welfare gains and losses for individuals we must know all individuals' personal demand functions (which in practice we will never know); or, if we estimate welfare gains and losses on the basis of estimates of aggregate demand functions, we must be willing to assume that the distribution of incomes has previously been optimized.
21. In the terminology of Stigler and Becker (1977), the ability to derive utility from such stimuli as classical music is labelled ''consumption capital,'' which can be increased by investing time and resources (as in listening to classical music). If A has greater ''consumption capital'' than B at time *t*, because of greater past investments in consumption capital enabled by a greater past income, then the marginal utility of income for A will exceed (assuming they have comparable utility functions) the marginal utility of income for B, even if their incomes are equal. Total utility at *t* is clearly increased by an income transfer from B to A. The present value of total utility over time might also be increased by a transfer from B to A, depending on the differential in marginal utilities of income, the marginal efficiency of income in the production of consumption capital, and the social discount rate. But could anyone justify the criterion of maximizing total utility under these circumstances? Stigler and Becker have in mind, of course, the issue of conscious choice of future preferences, or what others call ''exercising preferences over preferences,'' whereas Elster (1982) emphasizes the unconscious alteration of preferences as a result of limitations on the feasible set of alternative choices.
22. The argument is framed in terms of available resources instead of utility on the basis that as moral individuals we have some control over our tastes. Or, to put it more clearly, if everyone else would be happy with $100,000 per year but you would feel miserably deprived, this is *your* problem, not anybody else's.
23. See Rawls (1971, 1982).
24. See, for example, the 1983 statement by the Canadian Conference of Catholic Bishops.
25. Rawls (1982, p. 162) defines a hierarchy of primary goods (basic political and social liberties, freedom of choice of occupation, the powers and prerogatives of office, income and wealth, the social bases of self-respect). He argues that the only permissible differences among citizens are those arising in the latter three types of goods and that justice-as-fairness implies the objective of maximizing the entitlement of the least well-off to

these primary goods. Given these primary goods, a liberal society should enable free and equal moral persons to pursue their own conception of the good, consistent with the rights of others. Note that there has been a subtle shift in the notion of a liberal society, from the utilitarian idea that society should not question or evaluate its member's preferences to the idea that all individuals should have the opportunity to pursue their own goals, as they define them for themselves. The Rawls criterion is therefore framed not in terms of maximizing the minimum level of utility in society (which cannot be observed empirically) but in terms of maximizing the minimum level of resources (i.e., income, wealth) that individuals have available to satisfy their preferences.

26. ''Exclusion'' is an idea that needs some examples to give it bite. One is the escalating standard of equipment in organized children's hockey. Twenty years ago it was sufficient to have skates and a stick, but poor kids who had neither could not play. Today poor kids may be able to buy a stick and skates, but that is not enough to be allowed to play; one now needs helmets, face guards and a stack of pads as well.

27. I do not mean ''average'' in its strict mathematical sense, I mean relative to the central tendency of the income distribution — of which median income is a better indicator. Note also that when we say that the Rawls measure of economic well-being is concerned with inequality, this refers not to the inequality of income among all people but only to inequality between the poorest and the median members of society. The relative conception of poverty concerns only inequality within the bottom tail of the distribution of lifetime incomes. In this sense a just society may well be one where some people are billionaires, as long as the process by which they become billionaires generates increases in the relative lifetime incomes of those with the lowest lifetime incomes.

Billionaires, however, generally have more political influence than the average individual does. Their children start life with definite advantages, and their day-to-day lives are rather different from the norm. Many people are concerned about inequalities between the very rich and the rest of society because they believe that these inequalities of wealth (1) create inequalities in effective political influence that undermine democracy, (2) are incompatible with the ideal of equality of opportunity, and (3) are destructive of a sense of social community. These are important issues, but they are not considered by the Rawls criterion.

28. Given that justice-as-fairness implies a hypothetical choice of risks in order to evaluate social states, we might conceivably take actual behaviour toward risk as an estimate of the weights we should attach to the incomes of the poor and the non-poor. Unfortunately, the theory and measurement of attitudes to risk is too poorly developed to enable this to be done. Not that the issue has been neglected by researchers; Machina (1983) provides a bibliography of almost 400 references. However, in experimental situations and in everyday life human beings consistently refuse to behave in the ways predicted by the axioms of expected utility theory. This makes it impossible to estimate with any certainty the risk aversion parameter that would be required to define a ''just'' distribution of income based on a hypothetical choice from behind a veil of ignorance. Experimental or econometric evidence cannot therefore guide us in choosing, from the class of one-dimensional social welfare functions, that weighting of relative incomes with a unique claim to ''justice.'' As Atkinson and Bourguignon (1982) emphasize, when we consider multi-dimensional social welfare functions (e.g., where aggregate social welfare depends on the extent of inequalities in both life expectancy and income) the information we require to specify a social welfare function increases very substantially.

29. The variability in total household earnings is greater than that in individual earnings, because household members may enter or leave the labour force and because household composition may change, due to death, divorce, or adult children leaving home. That fraction of the population that owns appreciable stock portfolios (or who buy or sell houses) also experience the variability of incomes that comes with exposure to capital gains and losses.

No Canadian survey has followed a panel of households over years, and government records on individual incomes over time are not generally available to researchers. We must therefore rely on U.S. studies such as Lane and Morgan (1975), Lillard and Willis (1978) and Freeman (1981), or Canadian studies using U.S. data, such as Blewett (1982). The general message is that most of the variance in earnings that we observe in labour

markets represents permanent differences between people, but an appreciable portion (27 percent in Lillard and Willis) is transitory year-to-year variation for particular people.

30. There is, in addition, the problem of welching, pure and simple. A bank may be able to seize assets or garnishee wages but it cannot tax the leisure people enjoy. Unless people need goods to enjoy leisure with, they might well adopt the strategy of one last, enormous fling (i.e., borrowing to the hilt on the promise of hard work for years to come but with the intention of enjoying the loan now and leisure later). This strategy is, presumably, what bank managers are paid to detect and prevent, but as long as it *might* be practised by some people, capital markets will remain imperfect.

31. The literature on the incentive effects of unemployment insurance on labour supply is by now immense and has often been used to justify cuts in the replacement ratio of U.I. benefits to insurable earnings as was done, for example, in 1978. See Osberg (1979).

32. See Osberg (1984). In the country as a whole, Glenday and Jenkins (1981) argued that about 35 percent of the workforce was subject to risks of recurrent unemployment during the 1970s. See also Freeman (1981).

33. See, for example, Okun (1981) or Laidler and Rowe (1980).

34. Adler (1982) is representative of defenders of traditional GNP accounts. Note that it is only the production of illegal goods and services (e.g., moonshine, pornography) that has a claim to be included in GNP. Crime that simply involves the transfer of title to goods or services in illegal ways (e.g., fraud, armed robbery) has no claim whatever to inclusion in a measure of productive activity.

35. See Feige (1979). Ethier (1985) surveys the literature and reports estimates of the size of the underground economy that range from 4 percent of GNP to 28 percent of GNP in the United States in the late 1970s. Estimates of the latter sort are based on assumed relationships between the volume of underground transactions and the amount of currency notes in circulation. But this demands the question, "Where is the underground economy?" General Motors does not pay its bills in unmarked $100 bills, and neither does the U.S. government or Sears or Bechtel. No large enterprise can operate on a cash basis without an accounting system that leaves a paper trail of transactions. If we eliminate some sectors from participation in the underground economy, such as automotive manufacture, railways, public utilities, the aerospace industry, federal, state and local governments, as well as parts of other sectors (e.g., large projects in construction, chain stores and franchise operations in retailing), then for the underground economy to reach 20 percent or more of GNP as a whole, it must be an entirely implausible fraction of the total recorded activity of the remaining enterprises.

    If the underground economy is growing, increases in measured GNP will understate increases in total economy activity. It is not clear, however, whether a cyclical downturn in demand will force people from employment in the recorded economy to the unrecorded economy or whether the demand for unrecorded goods will fall more rapidly than that for recorded goods in a recession. (For example, one could defer hiring a moonlighting electrician for home renovations but one would continue to shop for food at the A&P.) Hence it is unclear whether variations in the size of the unrecorded economy compensate for, or accentuate the severity of, the booms and busts of the measured business cycle.

36. See Murphy (1982) and Hawrylyshyn (1978).

37. Nordhaus and Tobin (1973).

38. Usher (1980, p. 147).

39. See, for example, the discussion of Juster (1973).

40. See the discussion of Lazear and Michael (1980) or in Beach et al. (1981) who both stress the importance (in different contexts) of which household equivalence scale is used. Intrafamily inequality may be an important aspect of "economic well-being" but the economic literature on household consumption assumes that consumption is equally shared within households — for an alternative point of view see Pahl (1980).

41. See Smith (1979).

42. See Usher (1980).

43. Concreteness can imply measurability only if we ignore the Cambridge problem of imputing present values from an expectation of future returns. I think most economists would

accept that the measurement of aggregate capital is theoretically indefensible as a prediction of the shares of national income going to wages or profits (see Bliss, 1975, p. 162) but practically unavoidable as a measure of accumulation (see Harcourt, 1972).

44. See Wolff (1981), Pearl and Frankel (1981) or Beach et al. (1981).
45. See Eisner et al. (1982).
46. See Hazeldine et al. (1984) for simulation models of resource rents and capital gains in the petroleum sector to the year 2000. Natural resource rents do not accrue entirely to private owners (due to taxes, royalty payments or actual ownership by government), so that we cannot take movements in share prices of resource-owning companies as a full measure of increments in the net value of resource stocks.

    In a study originally prepared for the Gordon Commission, Scott (1959) argued that an economy that was as dependent as Canada's on natural resource extraction should attempt to estimate the value of its natural resource wealth, but that the data to do so comprehensively were not then available. However, he did compute a rough estimate of $7 billion as the value of forest reserves in 1951, a sum that was about 90 percent of the value of Canada's stock of machinery and equipment at the time.

    Reforestation and the discovery of new reserves of minerals and petroleum are productive activities that add to our stock of available resources. Hence, the net depletion of natural resource stocks is production minus additions to proven reserves.
47. See Easterlin (1973) or Hirsch (1976).
48. If the income elasticity of demand for positional goods is one, there will be no change in proportionate consumption over time, and positional goods can be neglected as a category. However, a greater income elasticity of demand for positional goods would imply that the growth rate of the well-being produced by commodity consumption falls short of the growth rate of consumption.
49. If we could estimate individual risk aversion in a reliable way there would be grounds for collapsing the twin issues of inequality of lifetime income flows and instability of year-to-year income flows into the single issue of the inequality of annual money income within cohorts of workers of similar age. One could argue that the degree of risk aversion individuals might use in calculating the certain income that is equivalent, in utility terms, to a variable income is the same degree of risk aversion they would use in choosing income distributions in Rawls' hypothetical "fair" case. However, if, as I believe, the econometric and experimental evidence indicates that estimates of risk aversion are to be treated with extreme caution, then we have no recourse but to treat separately the issue of insecurity and inequality.
50. The measurement of economic inequality and its disaggregation into components offers an example. As Shorrocks (1980) and others have shown, the Theil index is the only appropriate measure to use to disaggregate economic inequality, but this measure is not used all that often in empirical work, largely because it is extremely hard to communicate in anything other than algebraic terminology. On the other hand, the continued appeal of measures of inequality based on the Gini index is no doubt due largely to their easy graphical interpretation. The importance of easy interpretation is illustrated by the fate of two proposed amendments to the Gini index. The Donaldson-Weymark (1980) proposals are technically correct, but they are complex and have received little attention. The "Paglin-Gini" (Paglin, 1975) is a technically incorrect method of inequality decomposition, but it can be presented easily in graphical form and soon became rather popular (e.g., Armstrong et al., 1977). The moral of the story appears to be that information will not be used in public debate, whether the debate of the general public or the debate of the technical specialists, unless it is easily communicable.
51. Aggregate levels of consumption and capital accumulation are the meat and potatoes of aggregative macroeconomic modelling. With the aid of simplistic demographic projections of household size and composition, we can also calculate effective per capita consumption, including levels of household production. However, projections of income distribution by household characteristic and of year-to-year variability in income flows really require a micro-simulation model of household behaviour; one example is Orcutt et al. (1976). Incidence analysis also requires some sort of micro-analytic modelling.
52. Any poverty line is to some extent arbitrary; in the real world there is a gradual transition in the extent of economic deprivation as income levels fall. The "near-poor" or

"poor" are categories we impose on the data in an attempt to approximate that level of deprivation that is unacceptably great by current social norms as to a minimally decent standard of life. The dividing lines between these categories are always somewhat arbitrary, but one-half the median is pretty close to the income levels established as minimum subsistence budgets in the United States over the period 1905 to 1963. See Osberg (1984b, pp. 61–72).

53. This idea is developed at greater length in King (1983).

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Political Economy of the Canadian Welfare State

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The Welfare State and the Size of Government

Introduction

When the time comes for future historians to analyze the social and economic evolution in Canada and other industrialized nations during the third quarter of the 20th century, one trend that will stand out is the tremendous growth in the economic role of government. On the one hand, this growth is reflected in the very rapid expansion of laws and regulations that influence private economic activity. On the other hand, it has led to a very rapid increase in the relative importance of government revenue and expenditure in the economy. One striking illustration is provided by the ratio of total government expenditure to total income in Canada. Between 1950 and 1983, this ratio roughly doubled, from about 22 percent to 45 percent.[1]

Part of the growth of government expenditure corresponds to increased spending on traditional public sector activities such as defence, maintenance of a system of law and order, transportation and communication, and support of particular kinds of industrial development. However, in relation to the economy as a whole, this kind of spending has remained fairly stable. The main source of the relative expansion of government has instead been the very rapid growth of expenditures for programs that can be loosely described as together making up the Canadian welfare state.

In this paper, I will use a broad definition of the welfare state that includes four main kinds of programs:

1. programs of transfer payments to particular categories of Canadians, without income tests (sometimes referred to as "demogrants");
2. cash transfer programs that involve an income (or "needs") test;[2]

3. social insurance programs;
4. programs of in-kind transfers.

In the first category, programs of transfer payments without income tests, Old Age Security and Family Allowances are the two largest programs. The second category, income-tested or needs-tested programs, is dominated by the various provincially administered social assistance programs and the federal Guaranteed Income Supplement to persons over age 65 with low incomes. In the social insurance category, the largest programs are the Canada/Quebec Pension Plans and the federal Unemployment Insurance program. In the fourth category, programs of in-kind

TABLE 3-1 Expenditure on Major Welfare State Programs, All Levels of Government, 1982–83 (billions of dollars)

Programs without Income Tests	
Old Age Security	7.0
Family Allowances	2.2
Total	9.2
Programs with Income Tests	
Guaranteed Income Supplement	2.4
Refundable Child Tax Credit	1.5
Social Assistance and Provincial/Local Income Support and Tax Credits	6.2
Other	0.4
Total	10.5
Social Insurance Programs	
Canada/Quebec Pension Plans	4.1
Unemployment Insurance	8.6
Workmen's Compensation	2.0
Veterans' Pensions	1.0
Total	15.6
In-Kind Transfers	
Health Insurance	22.3
Education[a]	21.4
Total	43.7
Total Welfare State Programs	79.0

Sources: Table 1 in Fortin (1985); Fortin quotes the Continuing Committee of Officials Reporting to Deputy Ministers of Social Services, *Inventory of Income Security Programs in Canada*, 1984, as his main source. Spending on education calculated by the author from data in Statistics Canada, *Federal Government Finance 1981* (Cat. 68–211), *Provincial Government Finance 1981* (Cat. 68–207) and *Local Government Finance, Preliminary 1981* (Cat. 68–203).

Note: Totals may not add due to rounding.

a. 1981–82

transfers, I include the provincial health insurance plans as well as government support to education at various levels.[3]

It is spending on these programs, together with several other smaller programs in the welfare state, that carries the primary responsibility for the growth in the cost of government referred to above. The share of total government spending of all welfare programs (as I have defined the term) was 32 percent in 1950; by 1981, the share had risen to 55 percent. As a proportion of total Canadian income (as measured by Gross National Product), this translates to 7 percent in 1950 and 22 percent in 1981. Put differently, if welfare spending had been the same proportion of GNP in 1981 as in 1950, total government expenditure in 1981 would have been 25 percent of GNP rather than the actually observed 40 percent.[4] Table 3-1 gives an overview of the relative importance of types of welfare spending in 1982–83.

The Structure and Approach of the Study

The rest of this section compares the pattern of welfare spending in Canada with those of other industrialized countries, including the major countries in Western Europe and the United States. In the second section, I turn to a discussion of possible explanations for the growth of the welfare state; in considering this issue, I distinguish two interrelated but separate functions of the welfare state, the insurance function and the redistribution function, and argue that very different explanations must be used in explaining the growing role of the state in these two areas. In the rest of the section, I concentrate on the redistribution function and consider different hypotheses that have been used to reconcile the existence of substantial amounts of redistribution with the self-interest assumption underlying most economic analysis.

The third section provides a brief sketch of the historical development of the Canadian welfare system, and discusses the special problems that arise in the development of a welfare state in a federal system.

The fourth and fifth sections, finally, deal with the costs of the welfare state. Most of the discussion in the fourth section is concerned with indirect costs that arise because of the inefficient ways in which economic agents may change their behaviour to increase the benefits they derive from the welfare state, or decrease the taxes they must pay to finance it; I also briefly note some potential inefficiencies that may arise when the welfare state involves a program of in-kind transfers (such as health services or education) rather than cash transfers. The fifth section also summarizes some of the recent debate on Canadian welfare policy (including the often-misunderstood issue of "universality vs. selectivity") and also contains a discussion of possible directions for welfare reform.

Throughout the paper, the viewpoint is that of an economist, implicitly using the concept of the state as an institution created to serve the

interests of essentially self-interested but interdependent individuals. This means that gradual changes in the importance of concepts such as accepted norms regarding "social justice" or "mutual rights and obligations between citizens and the state" are downplayed, even though they surely are important proximate determinants of the growth of the welfare state.[5]

The analysis is also positive rather than normative (except in the last section where I suggest methods of improving the efficiency of the redistribution function). This means that I do not discuss ways of increasing the amount of redistribution through the welfare state, nor methods of strengthening the political acceptability of existing programs.

An International Perspective

Quantitative comparisons of welfare state systems in different countries in the world are few and far between. In part, this is because the results of such comparisons are necessarily somewhat ambiguous. For example, they may depend on the range of programs that are included in defining "the welfare state." Thus, if government spending on health and education is excluded, Canadian welfare state spending (relative to GNP) would have appeared to be significantly below that of the United States in the early 1970s; if it is included, Canadian spending is higher. Another factor that complicates cross-country comparisons is the method of financing welfare state spending: the economic consequences of having a comprehensive set of welfare state programs financed by specific premiums and social insurance contributions may be quite different from those of having a similar set of programs financed out of general tax revenue.

Despite such ambiguities, aggregative comparisons of welfare state expenditures in different countries yield a picture of significantly different patterns of spending. Perhaps the most comprehensive set of comparisons of this kind is provided in a series of Organization for Economic Cooperation and Development (OECD) studies published in the latter half of the 1970s,[6] the main results of which are summarized in Table 3-2 below. Several interesting conclusions are suggested by the data in the table.

While Canadian public spending for health care (as a proportion of GNP) was close to the median value for the sample countries, government spending on education was proportionately larger in Canada than in any other sample country. From information provided in the underlying OECD study, however, it is clear that the major explanation for this was Canada's relatively young population in the early 1970s: if the value of the index used in the study to measure the age composition had had the same value in Canada as the average value for the sample, the Canadian spending figure would have been 4.9 (instead of 6.5), which again is very close to the median.[7] Correcting for demographic effects, therefore, Canadian spending on education and health was not atypical.

Spending on "income maintenance" is defined in Table 3-2 as including

TABLE 3-2 Government Spending on Welfare State Programs in Percent of "Trend" GDP (1972 or near date)

	Income Maintenance	Health Care	Education	Total
Canada	7.3	5.1	6.5	18.9
Austria	15.3	3.7	4.0	23.0
Belgium	14.1	4.2	4.9	23.2
Netherlands	14.1	5.1	5.4	24.6
France	12.4	5.3	3.2	20.9
Germany	12.4	5.2	3.0	20.6
Italy	10.4	5.2	4.0	19.6
Denmark	9.9	6.5	n.a.	n.a.
Finland	9.9	5.5	5.6	21.0
Norway	9.8	5.3	4.9	20.0
Sweden	9.3	6.7	5.9	21.9
United Kingdom	7.7	4.6	4.4	16.7
Ireland	6.4	5.4	n.a.	n.a.
Australia	4.0	5.0	3.8	12.8
New Zealand	6.5	4.2	n.a.	n.a.
United States	8.0	3.0	5.3	16.3
Japan	2.8	3.5	2.6	8.9

Sources: Organization for Economic Cooperation and Development, 1976a, 1976b, 1977.

government expenditures for old age and "invalidity" pensions, child allowances, sickness cash benefits, unemployment and related benefits, and social aid (social assistance). In this category, Canada is atypical: the figure of 7.3 percent of GDP is substantially lower than for any of the countries in continental Europe (where some countries spent almost twice as much in relation to GNP as Canada) or the Scandinavian countries, and slightly lower than for either the United Kingdom or the United States. Thus in this respect the Canadian welfare state in the early 1970s was, if anything, among the least comprehensive. From data on the composition of income maintenance programs in various countries, it is clear that the main reason for this was the relatively low level of expenditures for old age support, child allowances, and sickness cash benefits in Canada:[8] the shares of these categories of total income maintenance spending are considerably below their average shares in other countries. By contrast, the shares of Canadian spending for unemployment benefits and social assistance payments were much higher than the corresponding shares in any other country in the sample.[9]

Finally, as I will argue below, an important aspect of a welfare state

is the way it is financed: by various forms of premiums or social security contributions, or out of general tax revenue. Here, Canada again is somewhat atypical, with social security contributions accounting for less than 10 percent of total government revenue. This figure is the third lowest in the sample; in over half of the countries, including the United States, the share falls between 20 percent and 40 percent.[10]

The OECD data underlying the preceding comparison were collected in the early 1970s. It appears unlikely, however, that a comparison in the late 1970s or early 1980s would show a very different picture of Canada's relative position in this group of countries. Since the early 1970s, the Canadian ratio of welfare state spending to GNP has increased only marginally, so that as long as the corresponding share has not actually been falling in other countries, there cannot have been much of a change in Canada's relative position. Because the relative importance of income maintenance programs in total Canadian welfare state spending has grown slowly (from about 40 percent in 1971–72 to about 45 percent in the early 1980s; see Table 3-1), Canadian spending almost certainly also continues to be atypical in devoting a relatively small share to these kinds of programs. In addition, Canada continues to rely relatively little on specific premiums and contributions in financing the welfare state.

Historical analysis of the European welfare states has shown that even though they evolved at different rates in different countries,[11] by the 1970s they had become similar in terms of the scope of programs and degree of coverage. Comparing the development of European and North American welfare states, Kudrle and Marmor (1981) show that in the past Canada (and even more so, the United States) has lagged behind in terms of coverage and spending. However, the period of rapid welfare state development in Canada during the 1950s, 1960s and early 1970s brought the Canadian system closer to the European systems, and Kudrle and Marmor suggest that the North American welfare states will continue to become more comprehensive and more like those in Europe today.

If this suggestion were interpreted as implying that social and political forces in North America will inevitably lead to the same pattern of welfare state development as in Europe, discussion of Canadian welfare reform or welfare policy in general might appear essentially futile. However, systems that develop along similar lines in terms of scope and population coverage, and even in terms of financial flows relative to GNP, may still show significant differences in terms of such factors as rules governing eligibility for benefits, methods of financing, etc., and these differences may have a substantial impact on the cost and efficiency with which the systems fulfill their purpose of protecting the poor and disadvantaged. Thus, the main emphasis of the policy discussion in the concluding section of this paper will not be on the issue of whether the welfare state is, in some sense, "too big" (or "too small"); instead, it will focus on ways in which the welfare state can be made more efficient.

Why has the Welfare State Grown So Fast?

Introduction

To economists, the question of why the welfare state has become so big in many countries is particularly interesting because it may seem, at first glance, to contradict the basic working assumption underlying most economic theory: that people, in their economic behaviour, are motivated by pure self-interest. If that assumption is valid, why is it that most individuals, even those who can expect to be net contributors to the welfare state, nevertheless have continued to give political support to its continued expansion?

A variety of possible answers to the question has been suggested. One group of analysts has taken the existence of welfare programs and the progressive income tax as a violation of the pure self-interest assumption. In their view, widespread political support for the welfare state exists simply because people in general care, at least to some extent, about the economic well-being of others, as well as their own. When the preferences of individuals incorporate some form of "altruism" in this sense, well-to-do people will support welfare programs because they themselves (as well as the beneficiaries) will be better off with a welfare system than without it. Another set of economists has provided an alternative type of analysis that does not depend on the presence of altruism. Instead, it explains the welfare state mainly as a system of transfers that is necessary to induce the potential beneficiaries to accept the basic legal and institutional framework that underlies a capitalist economy based largely on the institution of private property.

I will discuss these extremely interesting and important issues later in this section. First, however, I will consider an alternative interpretation that does not primarily emphasize the rich-to-poor redistribution aspect of the welfare state, but focusses instead on the insurance aspect.

The Insurance Function of the Welfare State

The starting point for the insurance interpretation is the observation that over time the economic circumstances of individuals will change. Some changes are predictable: people reach adulthood and later on retire from the labour force; most people also will marry and have children. Other events affect individuals' economic circumstances at unpredictable times. Unemployment of one or more of a family's breadwinners or a disabling injury might involve economic disaster in the absence of unemployment insurance or insurance against injury-related income loss. And, as many newspaper stories from the United States remind us, a family may be financially ruined by the cost of illness if it is not covered by adequate health insurance.

In one way or another, most individuals will try to anticipate, or protect themselves against, the consequences of these changes in their economic situation. In a highly developed welfare state, most of this protection is provided by various economic security programs that are usually classified as part of the welfare state. But suppose now that these programs ceased to exist. For some people, the consequences would undoubtedly be severe: many old people and families with children would find themselves with a very low standard of living, and many of the sick and unemployed would face severe hardship. However, in the absence of government programs of income maintenance or income security, most people would try to protect themselves through other channels. For example, if there were no programs of government support to old people, most individuals would provide for their old age through some type of private pension plan, and couples planning to have many children would try to compensate for the reduced government support and maintain their consumption standard by saving in anticipation of having children, or dissaving while the children were growing up. Private health labour unions could be expected to expand their role in this respect and require changes in labour contracts to provide more security against layoffs than current contracts usually do.[12]

These alternative private arrangements would not, of course, be perfect substitutes for public plans. For one thing, private markets may simply not function very effectively in the income security area, even when they are reasonably competitive. Thus, private arrangements might be much more costly than comparable public plans, and some people would end up with no insurance coverage or retirement income in the absence of public plans.[13] The argument made here, however, is that most people understand and value the security provided by the public programs, and would realize the need for alternative private arrangements if there were no public programs; equivalently, most people would not, if given the choice, opt out of the public programs even if they had to ''buy'' them through actuarially based premiums or contributions. Note that the cost of private insurance or of providing a retirement pension would have to come from people's own resources in this hypothetical situation; however, the abolition of subsidized government programs would make possible very substantial tax reductions, providing more resources for the average taxpayer out of which to pay insurance premiums, pension contributions and so on.[14]

This argument, therefore, suggests an alternative interpretation of the widespread political support for the expansion of the welfare state during the postwar period. The expansion can be seen primarily as an increase in the extent to which provision for individuals' economic security is made in the public sector rather than in the private sector, and not primarily as an increase in the extent of redistribution from rich to poor. The political support for this process can thus be seen as mostly reflecting the judg-

ment that it is more efficient to provide income security in the public sector, not as reflecting increasing altruism. Most people who are net beneficiaries of the welfare state at any time are net contributors from a lifetime point of view. Conversely, most of those who are net contributors to the system over their lifetime can expect to be net beneficiaries some of the time. Indeed, if one takes a life-cycle perspective, the notion of redistribution from rich to poor has to be reinterpreted: one must consider the net transfers between individuals over their entire lifetime, not just the transfers at a point in time. The implication of the ''insurance view'' of the expansion of the welfare state is that only a relatively small part of the increased spending on the welfare system has involved increased redistribution in the life-cycle sense.[15]

The importance of this interpretation does not lie only in the fact that it makes it less difficult to reconcile the political support for the welfare state with the economists' ''self-interest assumption.'' It also lies in the point that the welfare state in its present form serves two distinct (though interrelated) objectives: 1) to provide some degree of economic security for everybody, both those who are poor and those who are not poor, in a life-cycle sense; and 2) to redistribute real income between the rich and the poor (in the same sense). The two objectives are interrelated because the welfare state involves programs that provide economic security for everybody, both rich and poor; such programs do imply an indirect redistribution to the poor if it means that they are provided with a level of income security they would not otherwise be able to afford. But it is important to recognize that the redistribution is indirect, and that most of the funds flowing through these programs do not constitute redistribution to the poor.

Distinguishing between the ''insurance function'' and the ''redistribution function'' of the welfare state will be important in the later analysis. Raising the revenue necessary to finance the programs of the welfare state may be very expensive. If the programs are to be financed out of tax revenue, the total economic cost of raising $1 in tax revenue may be considerably more than $1, once account is taken of the costs of administering the tax system as well as the program itself, and of the ''excess burden'' of raising tax revenue.[16]

This suggests the principle that general tax revenue should not be used to finance activities or programs that can be undertaken reasonably efficiently in the private sector or financed, if they remain in the public sector, in other ways (such as through premiums or specific contributions) which are less costly in this sense. But this principle corresponds closely to the distinction between the ''insurance function'' and the ''redistribution function'': the programs serving primarily the insurance function are precisely those that can be undertaken in the private sector[17] or fully financed out of premiums and contributions, while those serving the redistribution function necessarily have to be tax-financed.

What this argument implies is that on the one hand, the possibilities for making the welfare state more efficient are most likely to be found among those programs that primarily serve the insurance function. On the other hand, it also raises the question whether the expansion of tax-financed programs serving the insurance function may indirectly have led to a reduction in the scope of the transfer function. I will return to these themes in later sections.

The Welfare State as a Response to Altruism

Even if it were wrong to consider altruism the *only* explanation for the expansion of the welfare state, it would be equally wrong to claim that it has not been an important element contributing to the political support for the process. In certain areas, the presence of non-selfish attitudes and behaviour is obvious. Transactions between members of the same immediate family cannot be adequately described by models based on the assumptions of self-interested maximizing behaviour and exchange; economic models of decisions concerning such matters as education and labour force participation are often based on the idea that they are made by all family members together, with the objective being to maximize the well-being of the family as a whole. Some altruistic behaviour obviously also extends beyond the nuclear family; in many societies in the Third World, the relevant decision-making unit may be the "extended" family, which includes grandparents, aunts, uncles, and cousins, as well as the members of the nuclear family.[18]

But the dividing line between members of the extended family and other members of an individual's community is frequently not sharp, especially in social systems where individuals spend most of their time in small, closely knit communities where people know each other well and where in the past the feeling of community between rich and poor was often strengthened by membership in the same church. Historically, government-organized welfare began at the local level as a supplement to the informal support systems that exist within families, extended families or churches: public relief was limited to individuals who had exhausted other sources of income, including help from relatives. Even though such local welfare systems eventually became codified in legislation (such as the British Poor Laws), they can be considered as having their origin in voluntary systems based on altruistic feelings of obligation to less fortunate members of individuals' immediate communities.

Voluntary private charity continues to play a major role even in present-day developed welfare states. But even though it involves large sums of money in absolute terms, it has become small relative to the spending involved in public welfare programs.[19] One might argue that the reason why the role of voluntary or quasi-voluntary private charity has diminished is simply that the function of voluntary charity has been taken over by

the expansion of public sector programs; if one held this view, one would predict that if the general-purpose redistribution programs were eliminated or contracted, voluntary charity would expand and take up most of the slack.

However, this line of argument is unconvincing in the context of a large modern industrial state in which economic functions have become highly specialized and in which economic relations between individuals mostly involve highly impersonal transactions in the market. Paradoxically, the industrial society has tended to reduce the size of the group within which individuals maintain close personal relations. Its evolution may thus have strengthened the role of the nuclear family. But it has reduced the importance of the extended family (in part because it has involved increased geographical mobility) and of small, stable and closely knit communities such as rural farm villages or small towns. By doing this, it has also taken away much of the foundation for a reasonably well-functioning system of private welfare, based in part on a feeling of obligation going beyond the immediate family, reinforced by religion and extending primarily to the relatively small community in which the individual lived. In such communities, the group of people in need of support used to be relatively small and clearly identified, as was the group of well-to-do people who were expected to contribute to their support; it was also relatively easy to discover if anyone among the well-to-do was not paying a fair share. In modern industrial societies, by contrast, this "matching" between potential contributors and recipients is much more difficult. The average potential contributor in a large community is faced with a very large number of possible recipients, all of whom can be considered equally in need of assistance, and the responsibility for providing assistance will also be shared by a large number of people.[20] But a situation where there is no natural matching between particular contributors and recipients is particularly likely to give rise to the problem of "free riders," a problem familiar to economists from the analysis of government-provided public goods.

In the present case, the free rider problem can be described as follows. While the average person may be willing to contribute *something* to help the poor in general (as distinct from the poor in the immediate community), the impact that any particular individual's contribution would have on the welfare of the average poor person would be insignificant. Thus, while reducing his contribution would raise the individual's own income, it would not perceptibly affect the welfare of the average poor person. It would therefore be in the interest of each well-to-do individual to reduce his contribution. But if every well-to-do person were to do this, any system of general voluntary charity would lose its effectiveness.

The standard social response to the free rider problem when it arises in other contexts is to have government provision of the good that benefits the free riders. Thus, no single individual will find it worth the cost to construct and maintain a public park, since most of the benefits would

go to other people (who would be the "free riders" in this case). However, if the government simply constructs the park and finances it by collecting taxes from the potential beneficiaries, most people are better off. If the political system functions well, the result should approximate fairly closely what would happen with a voluntarily negotiated contract according to which the potential beneficiaries of the public good agreed to share the cost.

A government-organized welfare state can similarly be interpreted as a way of overcoming the free rider problem associated with voluntary charity. If most well-to-do people are somewhat altruistic, they will feel better off if the poor are helped by a government-organized welfare state even though the free rider problem would mean that each well-to-do person, acting alone, would give much less to the poor than his or her share of the taxes that finance the welfare state. Note that when interpreted this way, there is very little conceptual difference between a system of private charity in small communities in which the potential free rider problem is overcome by social pressure and a government-organized welfare state; the two systems differ only in the techniques used to overcome the free rider problem.[21]

Attempts have been made in the literature to formalize the concept of altruism in such a way that it can be used to explain the *extent* of redistribution through the welfare state (i.e., not just to explain why some sort of welfare state exists).[22] Using this kind of formalization one can (under certain assumptions) construct a hypothetical tax-transfer system that would be supported by all income classes because the implied transfers from rich to poor would reflect the amounts that the richer groups (given their degree of altruism) would voluntarily want to give to the poor if the free rider problem could be overcome through the political system. However, this line of reasoning has been sharply criticized on the grounds that there is little reason to expect a political system based on one-man-one-vote and majority rule to produce a system that at all resembles that which would result from a voluntarily negotiated agreement between potential donors. Even if potential donors are altruistic to some extent, a welfare state organized by a democratically elected government will reflect not just this altruism, but also the way the political system works. I comment further on this in the following section.

A somewhat different approach to the theoretical study of the welfare state as an implicit reflection of altruism is represented by the literature on optimal tax-transfer schemes based on the *utilitarian* approach. The cornerstone of this approach is the assumption that it is possible to construct a mathematical function that can be used to measure the well-being (utility) of society as a whole on the basis of measures of the well-being of individual members of society. Redistributing real income between individuals changes their well-being, which changes the value of the overall "social welfare function." The optimal tax-transfer scheme (welfare state) is the one that yields the maximum value of the social welfare function.[23]

Altruism does not usually enter this kind of discussion explicitly, since the utilities of individuals are supposed to depend only on their own incomes. However, altruism may be taken as entering indirectly, in the construction of the social welfare function: if members of society are very altruistic, the social welfare function will be constructed so that the income of the poor is much more heavily weighted than that of the rich. The result is that in such societies the optimum tax-transfer scheme will involve a large amount of redistribution from rich to poor.

A fundamental ambiguity in this literature results from its failure to answer the question of who is to decide on the form of the social welfare function; what the "socially optimal welfare state" looks like is obviously determined by the way the function is specified. One possible answer is suggested by the work of the philosopher John Rawls (1972). He argued that the degree of inequality a society should accept should be based on the judgment of a hypothetical representative individual who was supposed to be about to enter the society from the outside, but without knowing which particular position in the society he would occupy (e.g., whether he would be rich or poor). In Rawls' view, the attitude toward inequality (apparent degree of altruism) reflected in the social welfare function should be based on the degree of inequality that such a hypothetical individual would like to see.[24] However, while Rawls' principle constitutes a possible ethical guide as to how the social welfare function should be chosen, it does not specify who would get to decide what this hypothetical person would want, and different people are likely to give very different answers. Ultimately, the form of redistribution that emerges in a society is determined through some sort of political process. Thus, we are led once again to consider the relation between the redistribution system and the way the political system is organized.

Political Decision Making, the Social Contract and the Welfare State

The discussion of the welfare state as a reflection of individual altruism de-emphasizes the compulsory element in the system; compulsion through legislation is seen mainly as a practical way of dealing with the free rider problem. However, the process through which welfare state legislation is formulated in modern societies hardly corresponds to the picture of a voluntary commitment on the part of potential contributors to participate in the system. In democracies, legislation is formulated in a system where the legislators are chosen in general elections in which everybody has a vote, including the potential net beneficiaries as well as contributors to the welfare programs.[25] But since this is the case, could it not be argued that the welfare state, construed primarily as a system of redistribution from rich to poor, simply exists because the poor in democratic societies

have sufficient political power to force such a tax-transfer system on the rich?

The economics literature contains some discussion of this possibility. In his paper on Director's law of income redistribution, Stigler (1970) explains the growth of welfare state spending with reference to technological changes that made it possible to use income (rather than other variables such as property or the consumption of particular goods) as the basis for both taxation and the distribution of government benefits; as a result, Stigler argues, it has become increasingly advantageous for the middle class to enter into a coalition with the poor to impose high redistributive taxes on the rich, for the benefit of both the poor and the middle class. In a similar vein, Peltzman (1980) has assembled international evidence that appears to support the suggestion that welfare spending tends to grow especially fast in societies with a rapidly growing homogeneous middle class that is able to dominate the political process and "tax the rich." Atkinson (1973) and later Itsumi (1974) and others analyzed simple models in which it was assumed that decisions were taken by majority voting and the problem is to decide what degree of redistribution should be built into society's tax-transfer system.[26] Altruism was disregarded in this analysis: individuals were assumed to be completely selfish, and inequality was introduced by assuming that individuals differed in their ability to earn income. The voting behaviour predicted by the models appears plausible: individuals with high ability (and therefore potentially high incomes) typically favoured low taxes and correspondingly small transfers to the poor, while those assumed to have low ability were predicted to vote for high taxes and large transfers (though not so large as to eliminate the incentive for those with high ability to earn the income on the basis of which the revenue to finance the redistribution would be collected).[27]

To many, this type of explanation of the welfare state (based on the assumption of self-interested voting behaviour) appears more realistic than the alternative that is based on a presumed general acceptance of an altruistic or egalitarian economic ideology. The approaches are not necessarily mutually exclusive, since the voter with median ability may be altruistic to some degree. However, even if there is some altruism in the population, there is little reason to believe that the extent of redistributive taxation imposed on the rich by the majority will bear any relation to the amounts they would voluntarily impose on themselves. The implicit assumption in this line of reasoning, therefore, is that altruism plays only a minor role relative to the distribution of voting power in affecting the way the welfare state is constructed.

But if the growth of the welfare state is considered mainly as a reflection of changes in the distribution of political power in society, the next question that naturally arises is how these changes came about in the first place. In a society where both wealth and political power historically started out being very unequally distributed, why did the rich and powerful (unless

motivated by altruism) give up much of their power to elected legislatures, and gradually extend the right to vote until it came to encompass almost everybody in society?[28]

This approach to the question is quite different from the one ordinarily taken by economists, who concentrate on processes of exchange and voluntary contracting, given some initial distribution of rights.[29] However, the analysis in the recent economics literature in the social contract tradition does provide hypotheses that can be used to explain the historical trend toward egalitarianism in general, in both the political and the economic arenas. (See, for example, Buchanan, 1975.) The line of argument is that a complex industrial economy requires basic agreement by all major groups to obey certain rules, if society is going to function efficiently. For example, if there were no property rights or laws of contract, a capitalist economy based on specialization and exchange would not be possible. But since everyone is potentially better off in a highly productive capitalist economy than in a primitive, less specialized economy, it would be possible for those who would stand to gain the most from a capitalist economic organization to bribe those who would not otherwise agree to participate in such a system, and still be better off than they would be in a more primitive one. According to those who argue along these lines, the trend toward social reform that makes the distribution of civil, political and "social" rights more equal can be interpreted as just such "bribes," designed to persuade all major social groups to continue to accept the basic form of capitalist economic organization.

In one sense, this explanation of the trend toward egalitarianism is appealing, since it implies that there is a mechanism through which the capacity for a capitalist system to create wealth is shared by all, at least to some extent. It is interesting to note that it also can be considered as an explanation of why the Marxian predictions of increasing inequality and ultimate revolution leading to the destruction of the capitalist system have not come true in the European and North American capitalist democracies.[30]

Many economists do not see the process in this optimistic light, however. A not uncommon view is that even though the development of the welfare state has played an important historical role in diminishing the propensity for revolutionary action against the capitalist system, in the long run the trend toward economic and political egalitarianism will prove incompatible with a decentralized capitalist system based on private property and competitive markets (see Hayek, 1944; Schumpeter, 1942; Usher, 1981). The basic problem, according to these analysts, is that egalitarianism will gradually lead to a larger and larger role of the government in the economy, not only in the area of taxation and income redistribution, but also in the area of regulation and control of private economic activity. As the burdens of taxation and regulation make productive activity in the private sector less and less profitable, more and more energy will be

diverted from productive activity and deployed instead in attempts by organized interest groups to try to influence government decisions in their favour. In the end, the allocation of resources and income will be largely determined in the political system, and the process will deteriorate into a non-productive struggle as each interest group tries to increase its share of a shrinking total.[31]

These suggestions are disturbing, and in my view deserve to be taken seriously; they also have implications for the future evolution of the welfare state. For present purposes, the interesting question is: what are the policy implications if the analysis is correct?

One possible answer (discussed by Hayek, Usher and Buchanan) is that the analysis implies a need for constitutional limitations on the redistributive activities of elected legislatures. This is only a partial answer, however; constitutions are also created within the political system. Another possible answer, therefore, is that the analysis has no policy implications: a prediction of what the policy makers (or members of the constitutional assembly) will do, given the pressures to which they are subject, cannot very well be used to generate advice to those same policy makers. However, if one presupposes that those who are responsible for economic policy, or for drafting constitutions, do not want to bring about the end of the capitalist system, one can ask the question whether there are some ways of responding to the political pressure for more political and economic equality that are less harmful than others. In other words, if many different strategies are possible in the pursuit of greater equality, is it possible to evaluate systematically which is the least costly one, in terms of the reduction it will cause in the productivity of our economic system? This is an issue to which I will return in the last section of this paper.

The Welfare State in a Federal System

Introduction

From an historical point of view, the preceding discussion suggests that a government-organized welfare state evolved in response to the breakdown, in large-scale industrialized and urbanized economies, of earlier systems of voluntary charity. However, large industrial economies have several levels of government, each with different functions. A question that therefore arises is which level of government will be given primary responsibility for organizing the welfare state. In Canada, the answer has been changing over time, with the federal government gradually taking a larger role. In this section, I will briefly sketch the process through which this has happened. In addition, I will also consider the question whether and how this gradual centralization has affected the scope and character of the welfare state, and thus whether it is possible to predict how the

welfare state would change (or would have evolved differently in the past) with a different degree of centralization.

A Brief History of the Canadian Welfare State[32]

Before World War I, the system of "poor relief" in Canada was mostly the responsibility of municipal governments, though over time, the role of the provincial governments became more active. The federal government had virtually no part in the welfare system before World War I: constitutionally, the provisions of the British North America Act implied that the provinces, not the federal government, had principal jurisdiction over matters relating to what is now the welfare state.[33]

The federal role in the welfare system remained limited in the 1920s and early 1930s. However, Canada's experience in the Depression quickly made it clear that the provinces did not have the fiscal capacity to respond effectively in a large-scale economic crisis. Thus by the time the Rowell-Sirois commission on dominion-provincial relations came out strongly in favour of a system of federal unemployment insurance, the provinces were ready to agree to a constitutional amendment paving the way for the Unemployment Insurance Act of 1941, which established the present system of federal unemployment insurance in Canada.

Debate on the issues of welfare reform was particularly active at the end of World War II, in Canada and elsewhere. In England, the 1942 Beveridge Report recommended a massive expansion of the existing British social insurance system, the establishment of what subsequently became the National Health Service, and a system of general children's allowances. The Beveridge Report had a great impact in both Canada and the United States, and in Canada, the 1943 *Report on Social Security for Canada* and the companion *Health Insurance Report* (the Marsh Report and the Heagerty Report, respectively) recommended similar comprehensive measures.

Ultimately, versions of the major reforms proposed in these recommendations were adopted. However, the constitutional situation in Canada slowed the process of reform. In the short run, only the recommendation for a children's allowance system resulted in action, with the passage of the family allowances act of 1944. Part of the reason why the government opted for a universal program (rather than a "selective" one in which benefits would have been paid only to low-income families after some form of income test) was the view that a universal program, financed out of general federal revenue, could be introduced without infringing on provincial jurisdiction, while a selective one could not.[34]

The remaining proposals in the Marsh and Heagerty reports (for comprehensive old age pension and health insurance programs and a major extension of the unemployment insurance system) were temporarily shelved in 1945 after the Federal-Provincial Conference on Reconstruction. At

that time, the federal government had offered to take financial responsibility for those fields of social policy, in return for an agreement by the provinces to continue the wartime arrangements under which the federal government had taken over a large share of the provincial sources of tax revenue. While this solution was rejected by the provinces in 1945, the general principle of increasing centralization of welfare state policies survived. The centralization was accomplished in part through the use of amendments to the BNA Act, or through use of the device of conditional federal cost-sharing of provincial programs. In 1951, after a constitutional amendment giving the federal government the authority to operate old age pensions, the Old Age Security Act was passed, and after a further amendment in the mid-1960s, the system was extended to encompass the Guaranteed Income Supplement (GIS) and the Canada Pension Plan (CPP). In the health insurance field, the cost-sharing route was used, with the Hospital Insurance and Diagnostic Services Act being passed in 1957 and the Medical Care Act (covering primarily doctors' fees) in 1966; cost sharing has also been used in the social assistance field, most recently under the Canada Assistance Plan negotiated in 1966.

The de facto centralization of responsibility for social policy in the federal government represented one possible solution to the problem of "fiscal imbalance" that had manifested itself during the Depression: that provincial governments did not have adequate sources of revenue to combat large-scale unemployment, or, more generally, to finance a comprehensive expansion of the Canadian welfare state. But centralization is clearly not the only possible solution. The 1956 report of the Quebec Royal Commission of Inquiry on Constitutional Problems (the Tremblay Commission) stressed the alternative solution of "fiscal decentralization" instead. Under this alternative, the major responsibility for welfare spending would continue to rest with the provinces, but the federal government would give up "tax room" to the provinces, e.g., by reducing federal rates of personal and corporate income taxation so that provincial governments could raise more revenue from these sources without raising tax rates. Yet another possibility might involve unchanged distribution of revenue sources but increased unconditional equalization grants from the federal government to the provinces. There is nothing technically inevitable about the trend toward centralization; it has resulted from the interaction between the constitution and the political and ideological forces that have been present in the postwar period. I will return in the following section to the question of what the effects on the Canadian welfare state would have been if this trend had been less strong.

The interplay between the constitution and political forces may also be an important part of the reason why the welfare state expansion between 1940 and 1970 involved so much more emphasis on programs that were made universal and uniform (such as our systems of family allowances, old age security and health insurance) rather than selective (or, more

generally, targetted on those with low incomes). As noted above, a universal family allowance scheme was thought by the federal government to be less likely to run into a constitutional challenge than a selective one would have been when the scheme was first introduced in 1944. And even though federal entry into the old age pension field involved provincial acceptance of a constitutional amendment, it seems likely that an agreement was easier to obtain because the scheme proposed by the federal government was universal, and thus could perhaps have been introduced unilaterally on the basis of the same constitutional provision as was invoked when family allowances were introduced.

Constitutional considerations may also explain in part why Canada's social insurance programs are to a large extent tax-financed rather than financed through premiums or contributions. For example, the fact that the Old Age Security program (OAS) was introduced as a tax-financed scheme may have had something to do with the fact that a compulsory contribution-financed scheme would very clearly have contradicted the spirit of sections (13) and (16) of the BNA Act.[35] The only programs in which premium or contribution financing are extensively used are the Canada Pension Plan (CPP) and Unemployment Insurance (UI), but individual CPP benefits are not completely determined by the level of previous contributions, and UI is only partially financed by premiums. Some provinces make limited use of premium financing in their health insurance plans, but in no province is the plan anywhere near fully financed by premiums. Furthermore, the federal government has discouraged premium financing, and the conditions imposed on the provinces under the cost-sharing agreements include a stipulation that if premium financing is used, there can be no discrimination between different groups of individuals in terms of the premium charged.[36]

The decade of the 1960s was clearly the most expansionary so far in the history of the Canadian welfare state, with four major programs (CPP, Medicare, the Canada Assistance Plan, and the Guaranteed Income Supplement to the OAS) being enacted. In addition, there was a major reform and liberalization of unemployment insurance in 1971.[37] The harsher economic climate of the 1970s and 1980s has brought much less expansion and even some tendencies toward reform involving retrenchment. The trend toward restraint is apparent at both the federal and the provincial levels. A contributory factor at the provincial level has been the change from cost-sharing to federal block grants in the health care and post-secondary education fields; at the federal level, restraint has been forced on the government by the large and persistent federal deficit. Indeed, some have argued that the federal expenditure commitments under the welfare state programs have now become so large that we have once again encountered the problem of a "fiscal imbalance," except now it is the opposite from what it was during the Depression.

The only programs that were significantly changed in the 1970s were family allowances and unemployment insurance. The family allowance program was changed in two stages, as part of a reform package that had the net effect of targetting the system of child support more directly on low-income families. The first government initiative to this end in the early 1970s failed: a proposal to replace the universal family allowance program with a system involving a guaranteed minimum income for families with children was withdrawn in the face of strong popular opposition, much of it coming from feminist groups. Instead, family allowances were substantially increased in 1974; however, because they were made taxable at that time, the net effect was to make the system a bit more progressive. The second reform came in 1978 when the level of family allowance payments was reduced, and a refundable child tax credit was introduced. This credit is income-tested:the maximum benefit is paid only to families with incomes below a certain level, and the benefit diminishes as family income rises; ultimately it reaches zero as family income reaches a specified level (which depends on the number of children in the family).

The unemployment insurance program was also changed somewhat in the direction of targetting benefits on low-income recipients: since 1979, persons who have drawn UI benefits and whose incomes exceed a certain level are required to repay up to 30 percent of the benefits (the repayment becomes part of the person's income tax liability). More important, the eligibility rules and support levels under the UI program were made considerably stricter in 1975–76.[38] The experience at that time drew attention to another potential area of federal-provincial conflict: with fewer people eligible for UI benefits, the demands on the provincial social assistance plans would become correspondingly greater.[39]

Mention should be made, finally, of the important initiatives taken in Saskatchewan, Quebec and Manitoba in the 1970s and early 1980s when these provinces established income-tested direct transfer programs to supplement their social assistance plans for certain groups of families or individuals who derive some income from work but whose incomes nevertheless are low enough so that they are considered in need of public assistance (the "working poor"). These programs can be thought of as limited versions of a type of program much debated during the 1970s, the negative income tax; I will further discuss the principle of a negative income tax in the final section of the study.[40]

Redistribution in a Federal System: Analytical Considerations

In this section, I will consider two related analytical questions. First, how can one explain the strong trend toward centralization of the programs of the welfare state, described in the previous section? And second, what

difference would it make if somehow we could make the system less centralized? In discussing these questions, I will focus on the redistributive aspect of the welfare state rather than the insurance aspect. As I noted earlier, social insurance programs in the public sector do not imply significant redistribution between rich and poor if they are self-financing on the basis of actuarially fair premiums or contributions. For such programs, the issue of federalism is essentially irrelevant. If, on the other hand, they are financed through taxes and therefore indirectly redistribute income, they raise the same analytical issues as purely redistributive programs.

The theoretical literature on the issue of redistribution in a federal state offers few well-established conclusions. Thus the discussion here will be more in the nature of suggestive speculation than an application of known economic theory to the Canadian context.[41]

An important determinant of the relationship between the degree of decentralization and the redistributive system in a federation is the degree of mobility of labour and capital. In countries with highly developed capital markets, such as Canada, capital is highly mobile. Labour also is mobile to a considerable extent, though not as mobile as capital, and the degree of labour mobility may differ between rich and poor. In general, therefore, neither an assumption of perfect immobility nor an assumption of perfect mobility is appropriate. To sort out the somewhat uncertain effects of mobility from other factors, I will first disregard labour mobility, and then consider the question of how the analysis must be modified when it is taken into account.

If there is little or no mobility of labour, and average incomes differ between provinces, one would expect less redistribution from rich to poor in a system where the task of redistribution had been decentralized to the provinces. Put in intuitive terms, it is reasonable to expect the extent of redistribution to depend on the degree of inequality between the rich and the poor in the jurisdiction within which it takes place. But the degree of inequality in the population as a whole is likely to be greater than the degree of inequality in any given province when average incomes differ between provinces.[42]

Notice that this conclusion is likely to be true whether redistribution is interpreted as being due to altruism[43] or the outcome of a process of self-interested voting behaviour. It is also interesting to observe that if redistribution is due mainly to altruism that is limited to fellow residents in the same province, an efficient redistribution scheme should be limited to within-province redistribution. Finally, if it is possible through political action to influence the extent of centralization in the redistribution system, one would expect to see the most support for centralization from the poorer provinces, since both rich and poor individuals in poor provinces would be better off with rich people in rich provinces sharing some of the burden of redistribution. As Banting (1982) has argued, centralization of various forms of income support to low-income individuals may indirectly

substitute to some extent for direct transfers (such as equalization grants) to governments in the poor provinces; the amounts transferred indirectly in this way now substantially exceed the amounts of direct inter-government transfers.

If there is substantial labour mobility, the tendency for a decentralized system to involve a smaller amount of aggregate redistribution is further strengthened. In any given province, there would be a tendency to limit the extent of redistribution because of the fears that high taxes on the rich would make them move to other provinces, and a relatively generous level of support for the poor would attract poor people from other provinces. As Breton and Scott (1978) argue, provinces that wish to undertake redistribution programs of their own in this situation have an incentive to support measures that restrict interprovincial mobility, on the one hand, and, on the other hand, may be willing to support measures (such as conditional cost-sharing) that force other provinces to implement similar programs of comparable standard. In Canada, the latter method has become predominant during the postwar period, and the role of implicit discouragement of mobility has decreased. For example, under the cost-sharing agreements governing both the Canada Assistance Plan and under the new Canada Health Act, provincial programs are required to meet specific minimum standards to qualify for cost sharing, but both agreements prohibit provinces from imposing any form of residency requirements as a condition of eligibility.[44]

Since the prediction is that decentralization will reduce redistribution everywhere when labour mobility is taken into account, one might expect support for centralizing measures from poor people everywhere, not just in poor provinces, and for decentralization from rich people generally. This conclusion is even stronger if it is true that the poor are less mobile than the rich; in that situation, decentralization of the welfare state would tend to induce a pattern of migration that would aggravate regional inequality.[45]

While the preceding discussion is far from rigorous, it suggests that if the system had remained more decentralized, the redistributive system embedded in the welfare state would have grown much more slowly than it in fact did. This in turn may explain the political support for the centralization process. Rapid expansion of the redistributive system may require centralization; thus the political support for measures such as constitutional amendments giving the federal government increased jurisdiction in the welfare field, or for indirect federal control over the system via conditional cost-sharing, was just another manifestation of the general political support for increased redistribution.

In one sense, of course, this just pushes the question back one step: what explains the gradually increased support for redistribution? The hypotheses discussed earlier cannot be used directly to provide an answer, since they only suggest reasons why there is *some* support for redistribu-

tion, not why the level of support changes over time. However, the earlier discussion suggests that one should look for the answer by considering such factors as a changing political balance between the rich and the poor within provinces, as well as between rich and poor provinces; such changes may themselves result from changes in the organization of the economy. Or, if one believes that altruism is an important factor in explaining the welfare state, one might hypothesize that there is a "high income elasticity of demand for altruism": as people in general become better off, they will be willing to contribute a growing share of their incomes toward redistribution.[46]

A further explanation that has been attracting more attention recently, not only among political scientists but also among economists, is the considerable influence that bureaucrats may gradually acquire over the system. It is sometimes argued that their position (and the consequent success of their efforts to expand the programs over which they are in charge) is strengthened by their control over much of the specialized information necessary to take decisions affecting it. It is also argued that the importance of this factor is enhanced by the complexity of the decision-making process that results from our system of divided jurisdiction. The rapid passage, with a minimum of debate, of an important program such as the Canada Assistance Plan in the mid-1960s is sometimes cited as an example: the debate over the program was largely confined to professional social workers and bureaucrats who were the only ones sufficiently familiar with the complex variety of existing provincial and municipal social assistance programs.[47] Whatever the explanation, it is clear that the process has not been limited to Canada; as briefly noted in the first section, the welfare state has become very large in almost all industrialized countries in the world.

When taking these factors into account, it is even unclear whether the "counter-factual question" (would the welfare state have expanded less rapidly in a less centralized system?) is meaningful. We could have had a constitution containing very strong provisions for decentralization. However, as the social demand for change becomes stronger, the constitution will ultimately be changed. At most, constitutional provisions can slow down the process of change; alternatively, they may force clumsy and inefficient measures to circumvent them.

This last possibility suggests a potential role for social scientists studying the welfare state. Even if they have no legitimate role in the discussion as to whether the expansion of the welfare state is a "good thing," their identification of the forces at work and the fundamental objectives of the system may be helpful in suggesting constitutional or institutional reforms that rationalize the system, i.e., make it possible to attain the objectives at lower cost. In the next section, I will turn to a discussion of this possibility.

The Costs of the Welfare State

Introduction

In this section, I analyze the costs of carrying out the redistribution and insurance functions of the welfare state. On the basis of this analysis, I then conclude the paper in the next section with a set of suggestions for possible reform measures that will reduce these costs. As I noted above, I will not consider the issue of whether the welfare state is, in some sense, too large (or too small) with respect to the redistribution function; I take the extent of redistribution that now takes place as given, and discuss instead the question of whether it could be accomplished at a lower cost. With respect to the programs involving the insurance functions, I will be interested primarily in their role as indirect instruments of redistribution, not in the efficiency with which they fulfill the insurance function itself, or with the question whether this function could be better fulfilled, in whole or in part, in the private sector.

Measuring "the costs of the welfare state" is considerably different from measuring the costs of ordinary goods and services. From the viewpoint of the economy as a whole, the real cost of something like, say, a tractor, consists in the fact that producing a tractor uses up productive resources (such as steel and labour services) that could otherwise have been used to produce other goods or services that people value. Most of the costs of the welfare state are not of this kind. When a family receives unemployment insurance benefits, or its family allowance cheque, no resources are directly used up: the money received by one family just means that that family will have more purchasing power over goods and services, and others (those who pay the taxes, etc., to finance the welfare state) will have less. In fact, these transfers of purchasing power constitute the fundamental *objective* of the welfare state; while redistribution from rich to poor certainly is a cost to those who pay, from the viewpoint of the economy as a whole it is not a cost since no resources are directly used up in the process.

However, while the welfare state may not use up resources directly, it may do so indirectly. I will distinguish here between three main categories of potential resource costs: administration costs; incentive costs; and resource costs from in-kind transfers. Of these three, the administration cost category is self-explanatory: if social workers and civil servants in Canada Manpower were not employed full-time in managing the welfare state, they could be employed in producing other useful goods and services.

The second category, incentive costs, refers to the fact that the existence of tax-transfer programs may make individuals modify their economic behaviour so as to increase the extent to which they benefit from the transfers, or to reduce their share of the costs (in the form of taxes); these changes in behaviour are equivalent to a real cost if they decrease the productivity with which the economy's resources are used.

The third category of costs arises because some of the programs of the welfare state involve the transfer of specific goods and services rather than of general purchasing power. Economists usually argue that this is likely to be inefficient because the recipients might have preferred to buy other goods and services if they had been given the equivalent cash transfer instead; the implication is that the resources used in the program would to some extent be wasted if the sole objective was to increase the recipient's welfare. In addition, I will also argue that in-kind transfers may involve an even more substantial and direct waste of real resources if the government becomes the dominant buyer in the market for the goods and services being transferred; this may make the market less competitive, and may lead to resource waste.

But if the redistribution that takes place under the welfare state gives rise to indirect resource costs of these kinds, then for each dollar raised from those who are net contributors to the welfare state less than one dollar will reach recipients as benefits. As Arthur Okun has put it,[48] it is as if we were transferring money from rich to poor with a leaky bucket: the bucket is full when it leaves those from whom the money is taken, but by the time it reaches the beneficiaries, a fraction of the contents has leaked away. Using this analogy, the search for methods of making the welfare state more efficient is just an attempt at reducing the size of the leaks, so that a larger fraction of the money will reach the recipients.

In the following sections, I will consider in turn the three categories of cost just discussed.

Administrative Costs

There has not, by and large, been much analysis in the literature of the costs of administering the programs of the welfare state, or of administering and complying with the tax system that raises the revenue to finance them. Kesselman (1982, pp. 251 and 253) summarizes information available from a small number of studies in Britain and the United States and, in an important study, Mendelson (1979) has estimated the cost of administering six Canadian income-support programs. With respect to income transfer programs, the evidence from the U.S. and British studies contains two messages: that administration costs may amount to a substantial percentage of program benefits, and that the costs increase dramatically as we go from universal programs to programs that require prior benefit-eligibility tests. A comparison of the administrative costs as a proportion of benefits for the largest (as measured by total benefits) universal and "tested" programs produces the following results: Britain, 3.8 percent for universal programs vs. 13.4 percent for tested programs; United States, 2.5 percent vs. 12.1 percent. The evidence provided by Mendelson yields a similar picture. For the large universal family allowance and OAS/GIS programs, he finds administration costs of less than 1 percent of total costs,

while programs involving eligibility tests yield the following cost estimates:[49]

Provincial allowances	4.2–6.7 percent
Municipal allowances	8.9–13.2 percent
Workmen's compensation	7.4–8.9 percent
Unemployment insurance	6.4–10.4 percent

The international evidence on administration and compliance costs of raising taxes indicates that the administrative cost to the government may be relatively low (perhaps 1–2 percent of revenue), but that the cost of taxpayer compliance with the tax laws may be substantially higher. This may be worth keeping in mind in the later discussion of the advantages of ex post benefit recovery through the tax system for high-income beneficiaries of various programs, in comparison with ex ante eligibility testing: the latter may impose a higher administration cost on the government, but the former may be more costly in terms of taxpayer compliance. It may be that the most important determinant of total administration and compliance costs is the degree of complexity of the system, not whether the system is universal or involves prior benefit-eligibility tests.

Incentive Costs and the Beneficiaries

Incentive costs are by far the most important category of resource costs associated with the tax-transfer programs of the welfare state. I will first discuss the costs that are likely to arise because of effects on the behaviour of potential beneficiaries, and then consider the effects that occur via the impact of the welfare state on the taxpayers who finance it.

In very general terms, if there are programs in the welfare system that specify benefits that will be available to people in particular categories, this may have an immediate impact on the economic behaviour of people who expect that they will belong to one of these categories in the future, or who already fall into one of the beneficiary groups but who are trying to move out of the group (such as those currently unemployed). Such changes in economic behaviour may reduce the productivity of these individuals, and thus the productivity of the economy as a whole.

The particular incentive effect of this kind that has been most extensively studied is the possible influence of welfare programs on the labour supply of low-income people. To illustrate the argument, consider the hypothetical case of a welfare state with a guaranteed minimum income based on the "cash deficit method."[50] In such a system, an unskilled person with a low earnings potential would have little reason to enter the labour market in search of a job, because the income from the job may be no greater than the income he would get from the government if he had no job; the only result of his taking such a job would be a reduction of the amount he would be paid by the government. Even if the income

he could make by getting a job were a bit higher than the minimum income, it still might not be worth his while, since even then most, if not all, of what he could earn would in effect "go to the government."

The Canadian welfare state does not, of course, have an explicit guaranteed minimum income. However, recipients of welfare benefits under the provincial or municipal social assistance plans find themselves in a situation very similar to the hypothetical one just described, since welfare benefits are usually based on the cash deficit method. Thus, even if efforts are made in other ways to encourage welfare recipients to find work, there is little doubt that the relative lack of financial incentive to do so has to some extent reduced the labour supply of employable welfare recipients; this reduction has increased the total amount spent on social assistance, and has also constituted a real loss to the economy, since whatever could have been produced by using these labour resources (even if only on a part-time basis) has been lost.

The unemployment insurance system also has similar (though less obvious) disincentive effects on the supply of labour. Individuals who have lost their jobs and are receiving UI benefits are better able to wait for "just the right job" to come along; while it is obviously a social and economic advantage for people to be matched with the jobs they like to have or for which they have the right skills, from the viewpoint of the economy as a whole this advantage is likely to be more than offset (because the unemployment insurance program implicitly subsidizes job search) by the disadvantage of losing the labour services of those who are engaged in a prolonged job search. Perhaps more important, the existence of unemployment insurance makes it less unattractive for people to leave jobs they don't like even if they do not have another job lined up, or even if they do not intend to look seriously for a new job immediately.[51] Finally, tax-financed unemployment insurance may make it more attractive for people to stay in areas where the only employment opportunities are seasonal ones (such as fishing), rather than search for employment in other areas where their labour resources could be more productively used.[52]

Assessing the quantitative significance of the potential disincentive effects on transfer recipients is difficult. The effects may be different for different programs. For example, the incentive effects of welfare payments to poor people will not be very important if a large percentage of the poor are people with very low productive potential (because of some form of mental or physical disability, for example). On the other hand, universal tax-financed old age security may lead to a substantial reduction in the work earnings and savings among those of working age, since that program affects everybody, not just poor people. In the circumstances, it is not surprising that there continues to be considerable disagreement concerning the importance of incentive effects; existing empirical studies have been only partially successful in reducing the uncertainty.[53]

Incentive Effects on the Taxpayer

The incentive effects on the taxpayers who pay for the welfare state are usually analyzed in the public finance literature under the name of "the excess burden of taxation." The idea of excess burden is most simply illustrated by considering a hypothetical tax system where all taxation took the form of specifying lump-tax liabilities for each individual, i.e., predetermined amounts that would not depend on factors such as the individual's actual income or consumption. In such a system, there would be no excess burden of taxation because there would be no incentive for individuals to change their economic behaviour to reduce their tax liability.[54] In the real world, however, the total taxes people pay depend on such factors as their measured income and purchases of goods and services subject to sales tax; indirectly, individuals are also taxed through levies such as sales taxes nominally paid by manufacturers, or by taxes corporations pay on the profits they earn. In general, these methods of determining tax liabilities give rise to an excess burden in raising government revenue because they make it possible for individuals or firms to reduce their tax liabilities by changing their behaviour in ways that are wasteful from the viewpoint of the economy as a whole.

I will not consider in detail the mechanisms through which the excess burden arises; comprehensive treatments of this issue are available elsewhere (see, for example, Lindbeck, 1980). Briefly, the waste of resources results because taxation based on income or consumption:

- artificially subsidizes leisure rather than market work, and do-it-yourself activity rather than more efficient specialization;
- discourages investment in "human capital" through education or skill upgrading and migration in search of better-paying jobs; and
- causes diversion of resources to a search for tax shelters or concealment of economic activity in the "underground economy."

In addition, there are the straightforward costs of administering and complying with the tax system. As noted above, evidence from various countries suggests that these costs may be substantial.[55]

The *average* excess burden on all funds raised by governments at all levels may be relatively moderate, perhaps less than 20 percent of total revenue. However, in recent work in this area it has been recognized that a more important concept is the *marginal* excess burden, i.e., the *incremental* resource waste that results from raising an *incremental* amount of government revenue. Estimates of the marginal excess burden are generally much higher than the average one, and several authors have argued that it may be as high as 50 percent or more.[56] If 50 percent is correct, it means that an additional dollar of government revenue costs $1.50 to raise: one dollar of direct and visible cost to the person paying it, plus an indirect

invisible cost in the form of wasted resources due to the additional distortions caused by the extra taxation. It also means that, to be justified, extra government spending programs should yield more than $1.50 in benefits per dollar spent. Conversely, the large value of the estimated marginal excess burden may be interpreted as a measure of the very substantial real savings that could be realized if it were possible to meet the objectives of various government programs at a lower cost.

Costs of In-Kind Transfers

The conventional reasoning in describing the efficiency losses associated with programs that involve transfers in kind rather than in cash goes as follows. Suppose the government decides to provide poor families with housing and toys for their children, and suppose a particular family is given a particular four-room apartment renting for $300 per month and $50 worth of toys each month, for a total cost to the government of $350 per month. Suppose further that if the family is given the $350 in cash instead, it chooses to live in a smaller apartment renting for only $250 a month, and spend $100 monthly on toys. Presumably, the family considers itself better off with the latter spending pattern, since it is freely chosen by the family itself. Expressed differently, this means that the $350 is worth more to the family when it is provided as cash than when it comes in the form of the specific package of housing and toys; with the specific package, the family may consider itself no better off than with, say, $320 in cash. Thus, in this example, $30 is simply wasted when the support is given in kind.[57]

How serious is this problem likely to be in the Canadian welfare system? Perhaps not all that serious. The most important examples of in-kind transfers in our system are the provision of free education and health insurance. With respect to education, it is possible that some families would buy less of education and more of other things in a system where educational services had to be bought, even if they were given enough funds so that they could afford to buy as much education as before. However, while this might mean that the *parents* would consider themselves better off in the latter case, the same might not be true of the children later in their lives. Thus, in-kind provision of education can be seen as a way of partly overriding parental preferences in order to make the children better off. When this is taken into account, the standard argument outlined above is less clearly applicable, at least with respect to primary and secondary education.[58] With respect to health care, it seems likely to me that most people would buy their own insurance and use fairly close to the same amount of health services as the government now pays for on their behalf, if they were given an equivalent cash grant instead.[59] Thus, while the standard argument applies in principle for this case, the efficiency losses on this score may not be all that large.

There is, however, another potential real cost associated with in-kind transfers which, in my view, may be more important in practice than the conventional type of cost referred to above. This cost arises in cases where the in-kind transfer system is universal, as it is in the areas of education and health care in Canada, and depends on the fact that, in practice, provincial and local governments have become the single buyers in the markets for these services. As a result, wages or prices in these sectors have largely become politically determined (salaries of teachers, fee schedules of physicians and rates in provincially licensed nursing homes, for example), or governments have become directly or indirectly involved in the production process itself (hospital services). A considerable amount of accumulated evidence indicates that the cost of government production of various services is higher than the cost when the same services are privately produced.[60] Politically determined wages and prices cannot, presumably, be driven *below* their competitive level, and those of producer groups or unions with political clout may end up well *above* that level. For example, it is difficult to believe (given the excess demand for places in medical schools), that it would not be possible to attract competent people to the medical profession even with fees and physician incomes below their current levels; similar considerations may apply in the educational sector in some provinces.

In the absence of specific and reasonably firm evidence, the proposition that the present systems of providing education and health services in Canada are unnecessarily costly cannot be confirmed without more research. The fact that physician income and the overall cost of health care in the United States are higher than in Canada, in spite of the lower degree of government involvement in U.S. health care, is often cited as evidence against the proposition. In my view, this argument is unconvincing in the sense that the U.S. health care system is not a very good example of a competitive industry.[61] In any event, the question whether our present organization of the financing and production of health care and educational services could be made more efficient is one that merits more attention.

Toward a More Efficient Welfare State

Introduction

On the basis of the preceding analysis, I will now finally turn to a brief and highly selective discussion of ways in which I believe the Canadian welfare system could be changed if one wanted to make it more efficient. My intention is not to provide a concrete set of proposals; any process of welfare reform in Canada will necessarily be gradual and incremental, so that suggestions for sudden and radical reform are pointless. What I am discussing, therefore, is what I would consider desirable *directions of*

change in the welfare system. For this reason, I will also not speculate on the size of the aggregative net benefits that could be gained from making the system more efficient. However, I would like to stress once more that I am not recommending changes that would reduce the costs of the welfare state by reducing the extent of redistribution to the poor. Instead, my focus is on ways to reduce the costs of a given amount of redistribution: how to make Okun's transfer bucket less leaky. Clearly, a specific constraint on the amount of redistribution puts a limit on the total amount of cost reduction that can be accomplished. I still believe, however, that there can be substantial efficiency gains from the types of changes I outline below, even with such a constraint.

Of the three cost categories listed earlier, I will have the least to say about administration and compliance costs of the tax and transfer system. This does not mean that these cost categories are unimportant, of course, nor that there are no reform possibilities in this area. For example, both compliance costs borne by the private sector and the administration costs borne by the government are likely to be higher the more complex the tax and transfer system. Thus, like most economists, I strongly support any effort to reduce administrative and compliance costs by simplifying the system. Furthermore, there is sometimes complementarity between the objective of lower administration costs and other criteria of efficiency (as well as equity). For example, it has been argued that a negative income tax is both less costly to administer and more efficient from an incentive point of view than traditional forms of social assistance. On the other hand, the objectives may also conflict. Thus, it is often believed that there is fairly widespread cheating within the unemployment insurance program, with people collecting benefits without being entitled to them. To reduce the incidence of such cheating (and thereby reduce the need to raise tax revenue), it may be necessary to increase the resources devoted to administering the system.

With respect to incentive costs in the welfare system, I will briefly consider two main areas of possible reform: the financing of our social insurance programs and the structure of implicit and explicit marginal tax rates resulting from the present system of taxes and transfers.

Social Insurance Financing

With respect to social insurance programs (unemployment and health insurance, Canada Pension Plan/Quebec Pension Plan), I strongly favour a move toward financing through actuarially fair premiums and contributions. Working out the details of a set of reforms that would accomplish this and estimating the costs of such reforms would clearly be a complicated task, and will not be attempted here; more extensive analyses are available elsewhere.[62] The principal argument in support of this move is simply the excess burden of raising taxes, discussed above. At first glance, it might

appear irrelevant whether individuals are forced to pay a premium for health insurance (say), or additional taxes that on average have to yield the same amount of revenue as the premiums. What this reasoning misses is that under tax financing, individuals (or families) can take actions that reduce their tax liability (for example, working less) without reducing the extent of their insurance coverage or old age security benefit; under premium or contribution financing, either the individual has to pay the full premium, or the extent of his coverage or benefit is reduced if he reduces his premium or contribution. Thus there is no possibility or incentive to reduce the amount of contribution or premium; in other words, there is no excess burden under this form of financing.[63]

It must be recognized, of course, that the present system of largely relying on tax financing for major programs such as unemployment and health insurance results in a substantial degree of indirect redistribution to the poor. With financing on an actuarially fair basis, this redistribution would disappear. To maintain intact the present degree of redistribution to the poor, any move toward actuarially based financing would have to be accompanied by compensating changes in the tax and transfer system. While it would certainly not be a trivial problem to decide exactly how large these changes would have to be in order to precisely offset a given financing reform, there is no question that it would be *possible* to design a reform package that would maintain the present degree of redistribution to the poor. Bringing forward a set of concrete proposals of this kind for public debate should, in my view, be a high priority in the area of welfare state reform.

Reforming the Tax-Transfer System

The possibility of reducing the overall costs of the welfare state by changing the structure of effective marginal tax rates implied by our present tax and transfer system is at the heart of the issue of welfare policy. It is the structure of these marginal rates that determines the extent of excess burden losses from taxation at different income levels.

In considering this issue, it should first be noted that what matters in a debate on distribution is not only transfers and tax rates, but the entire system of exemptions and deductions in computing taxable income, as well as the various tax credits that exist at the provincial and federal levels. To simplify the discussion, I will disregard tax law provisions such as the married and old age exemptions, the exemptions for dependent children, and so on. In a system with adequate transfers that guarantee a decent income level to all people in different categories (families with children, the aged and so on), there is little reason to retain special income tax exemptions for these groups, especially since in a progressive tax system the value of the exemptions rises with income. My disregarding these provisions, therefore, amounts to an implicit recommendation that eliminating them

should be part of any attempt at major welfare reform.[64] Thus the focus of my discussion will be on the interaction between the major transfer programs of the Canadian welfare state (family allowances, the refundable child tax credit, OAS/GIS, and social assistance) on the one hand, and a hypothetical simplified tax system.[65]

Much of the debate in the 1960s and 1970s on welfare reform focussed on the problems with the traditional form of social assistance, especially when it involved the "cash deficit" method on which most municipal and provincial social assistance programs in Canada are based. The major disincentive effect of such programs can be thought of as being due to the fact that the government imposes an implicit marginal tax rate of 100 percent on social assistance recipients: for each dollar the recipient earns, the government collects a full extra dollar in "tax" (benefit reduction).

Once the problem is thought of in this way, an obvious solution suggests itself: reduce this implicit marginal tax rate. This is the basic idea of the negative income tax (NIT). For example, a family earning zero income would receive a certain minimum amount as a transfer (a "negative tax"); if the family earned some income, the amount of the negative tax would fall, but only by some fraction of the family's own earnings. If this fraction were, say, 40 percent, the implicit marginal tax rate would have been reduced from 100 percent to 40 percent, and the incentive for the family to earn some income of its own would have increased dramatically. As was noted above, programs of this general type have in fact been introduced in Saskatchewan, Manitoba and Quebec, and introduction of some form of NIT at the federal level has been considered at various times.[66]

At the time the NIT was most actively debated in Canada and the United States, it was seen not only as an alternative to existing programs of social assistance, but also as a replacement for a variety of transfer programs directed at particular categories of people (such as the blind, the aged, families with children, and so on). In the Canadian context, this would have meant that the NIT would have replaced all the special transfer programs referred to above. However, during the debate it gradually became clear that if the NIT were to provide a level of support high enough so that the beneficiaries of these special programs did not experience a reduction in their level of support, the basic NIT transfer would have to be very substantial, and the rate of taxation necessary to finance it would be very high.[67] For this reason, there is now increasing support for retaining a system of different support levels for people in different categories, since such a system makes it possible to more effectively target transfers on people who for one reason or another are more likely to need support.[68] I will thus assume in the rest of the discussion that in addition to some form of general social assistance, the Canadian welfare state will continue to contain special transfer programs such as those directed to the elderly and families with children. The question at this point, therefore, is how

such a set of transfer programs should be designed, and how they should be integrated with the tax system, if the overall tax-transfer system is to perform its redistribution function at the lowest possible disincentive cost.

An Efficient Structure of Marginal Tax Rates

The aggregate disincentive effects of a system of welfare state transfer programs can only be evaluated by considering the tax-transfer system as a whole, taking into account the implicit marginal tax rates due to transfer reductions as well as the explicit marginal rates in the tax system. If this structure of marginal rates is estimated for any given tax-transfer system, it can be assessed against the results of the analytical literature on efficient income taxation.

A somewhat surprising but consistent result in that literature is that in an efficient system of redistribution, the lowest marginal tax rate should occur at the *top* end of the income distribution,[69] while marginal rates should be higher at lower incomes. This result can be taken as support for a pattern of redistribution involving relatively large gross transfers to those with low incomes, but a relatively high rate of benefit reduction in response to increases in non-transfer income (such as in the negative income tax described above). It is not consistent, in contrast, with a pattern involving transfers with little or no benefit recovery at the low end (such as family allowances or OAS), financed by a tax system which involves initially low marginal tax rates rising toward the upper end of the income scale.

As I will discuss below, it seems to me that the Canadian welfare system in recent years has been moving to some degree in the direction indicated by this type of efficiency criterion. Before arguing this case, I will first try to relate the concept of an efficient structure of marginal tax rates to the recent Canadian debate on welfare reform. This debate has focussed to a large extent on the issue of "universality vs. selectivity" in transfer programs. Those on the "selectivity" side have usually emphasized the desirability of reducing the cost of the transfer programs by concentrating benefits on those "in greatest need." One way to interpret this phrase is as suggesting that the programs should involve a relatively high rate of benefit reduction, and that the resulting savings to the government should translate into lower explicit marginal rates in the tax system. With this interpretation, the argument for "selectivity" is just an argument for a more efficient structure of (implicit or explicit) marginal tax rates as described above. It is important to recognize that increased targetting of benefits on "those in greatest need" can be accomplished in a non-stigmatizing way through ex post benefit recovery ("clawback") schemes integrated with the income tax.[70]

In the last few years, the debate on how to redirect program benefits toward "those in greatest need" has focussed on our three large federal universal programs of family allowances, OAS/GIS and unemployment in-

surance.[71] With respect to family allowances, the 1970 federal white paper on income security recommended the abolition of general family allowances and introduction instead of a graduated system of support to low-income families with children (the Family Income Security Plan). In Quebec, the Castonguay-Nepveu report of 1971 proposed that family allowance benefits of high-income families be repaid by imposing a special surtax on the benefits. Because of heavy public opposition, these recommendations did not result in legislation. However, the family allowance system was changed in 1974 when the benefits were made taxable, and again in 1978 when the benefits were reduced and the refundable child tax credit was introduced instead; the full benefit of this credit is available only to families with total income below a certain level, and the credit gradually falls to zero at higher family incomes.[72] Thus while the family allowance program itself remains, the overall system of government income support to families with children has become more targetted on those with low incomes.[73]

The 1970 federal white paper also contained proposals that were designed indirectly to move the system of old-age support in the direction of targetting: while it recommended keeping OAS as a universal program, it proposed abolition of indexing for OAS and progressive strengthening of the GIS, which is income-tested, in step with the expected reduction in the real value of OAS through inflation. This proposal was in fact enacted into law, but was almost immediately repealed in the face of opposition. The Economic Council of Canada report on future income security for retired Canadians in 1979 also recommended gradually reducing the role of OAS and strengthening of the income-tested GIS.

Most recently, the debate has focussed on unemployment insurance. Part of the reason for this is the evidence reported in a study of the distribution of UI net benefits by Cloutier (1978), who found that in 1975 only 13.8 percent accrued to heads of households and unattached individuals, while 55.8 percent and 30.8 percent accrued to wives and other family members, respectively. This strongly suggests that a large share of the funds flowing through the UI system is "round trip money" that is paid out by middle- and high-income families as taxes and returns as benefits to these same middle- and high-income families. In 1979, the federal government introduced a modest degree of benefit recovery by requiring repayment of up to 30 percent of UI benefits by taxpayers with incomes above a certain limit ($30,300 in 1983). However, this limit refers to individual income, not family income, which means that it is still possible for individuals who are members of high-income families to escape the repayment obligation. Recent proposals have implicitly accounted for this problem by proposing either restrictions in eligibility to collect benefits for members of high-income families, or more extensive recovery of UI benefits through the tax system but on the basis of family income rather than individual income (Cloutier and Smith, 1980; Osberg, 1979). A set of proposals by Kesselman

(1985) implicitly involves a move toward better targetting of UI benefits by making eligibility subject to much stricter requirements than currently apply, and bringing premiums closer to their actuarially fair values. The measures he proposes to compensate for this (subsidized private or special public employment and liberalized and expanded social assistance) would only be available to low-income families or individuals. The proposals by Blomqvist (1979) to make individuals and families responsible for the actuarially fair premium cost of their own health insurance, but compensating the poor or those in high-risk categories with special income transfers, would have a similar effect in the system of public support of health care.

Avenues of Reform

On the basis of the preceding discussion, it seems to me that better benefit targetting and a trend toward financing of social insurance programs through actuarially fair premiums or contributions should be two main components of future welfare reform in Canada. Again, I would emphasize that this need not hurt the poor. A system of gradual benefit recovery does not mean eliminating transfers to the poor; it means instead that transfers, explicit or implicit (as in tax-financed social insurance programs), are concentrated on the poor.

The idea of targetting in this sense was implicit in the role envisaged for the negative income tax when the introduction of some form of negative income tax was seriously considered in Canada and the United States in the early 1970s. As I noted above, a prominent idea at that time was that the NIT would serve as a replacement not only for traditional social assistance programs, but also for a variety of programs designed to help low-income people in various specific categories, such as families with children and the aged.

To some extent, the principle of consolidating the welfare system for poor people into a unified program is incorporated in the conditions for federal cost sharing under the Canada Assistance Plan: to be eligible for cost sharing, a provincial social assistance plan must offer support to all people "in need or likely to be in need," regardless of cause. Furthermore, as noted earlier, Saskatchewan, Manitoba and Quebec already have income support schemes for the working poor that in fact are versions of an NIT. These schemes are less ambitious than a general NIT in that they do not provide the same guaranteed support level to all individuals or families. However, for this reason, they are also less expensive. Increased federal support for provincial programs of this kind may therefore be a sensible approach, and may serve to pave the way for a gradual reduction in the scope of non-targetted programs such as family allowances, old age security and unemployment insurance. Alternatively (perhaps more realistically), the federal government may take the initiative

and enter into negotiations with the provinces to gradually take over some of the provincial responsibilities in the social assistance area by introducing a limited version of a federal NIT (perhaps integrated with the federal income tax system, as suggested by Kesselman, 1985), while at the same time reducing the scope of the non-targetted programs.

Finally, with respect to the possibility of making the welfare state more efficient by reducing the potential losses associated with in-kind transfers, my main proposals (outlined in Blomqvist, 1979) relate to the health care sector and involve reforms that would strengthen competition and efficiency on the production side. This might include new ways of remunerating physicians (for example, through salaries or prepayment contracts rather than the traditional fee-for-service method), or of financing hospitals (for example, on a fee-for-service basis rather than through what essentially is a cost-plus system). In addition, the advantage of increased benefit targetting applies in the health care field as well: less government revenue needs to be raised, and the excess-burden losses will be reduced, if people other than those with low incomes are required to pay the full premium cost of their health insurance. Similar considerations may be applied to the case of education.

Notes

This paper, completed in November 1984, has benefitted greatly from extensive comments on an earlier draft from A. Cairns, J. Kesselman, D. Laidler, L. Osberg, F. Vaillancourt, and two anonymous referees. I would also like to acknowledge helpful discussions with other members of David Laidler's Research Advisory Group, and the help provided by Mobinul Huq, who acted as my research assistant. I have benefitted as well from access to other survey papers, prepared for the Royal Commission, which deal in more detail with issues treated briefly in this paper, notably the papers by J.M. Cousineau, B. Fortin, J. Kesselman and C.K. Rowley (all dated 1985).

1. The expansion of government regulation has been well documented in Economic Council of Canada, *Responsible Regulation: Interim Report* (1979). The process of the expansion of government spending has been discussed in detail by Bird (1979) and more recently by Usher (1985).
2. A "needs test" differs from an "income test" in taking into account the potential beneficiary's assets as well as current income. A more common term in the popular debate is "means test." I will avoid this term because it is frequently thought of as involving demeaning, stigmatizing and sometimes arbitrary procedures used by government officials in testing the eligibility of potential beneficiaries; these procedures have sometimes involved investigations not only of the income and assets but also of the family situations and life-styles of applicants. I share the view of the growing number of people who strongly object to these practices, and who favour the simpler, non-stigmatizing eligibility tests that are now increasingly in use, e.g., in such programs as the Guaranteed Income Supplement or the Refundable Child Tax Credit.
3. Several ambiguities in this classification may be noted. First, while the before-tax benefits under the Family Allowance and Old Age Security programs do not depend on income, the after-tax benefits do, since the benefits are taxable. Second, an in-kind transfer program may or may not be income tested. In Canada, our largest in-kind transfer programs, namely those in health and education, are not income tested, while others such as various programs in the housing sector are. Third, while our system of health insurance

has been designed as an in-kind transfer program, it can obviously also be classified as a social insurance program. Fourth, the distinction between a tax-financed "demogrant" program such as Old Age Security and the Canada/Quebec Pension Plans, which are nominally financed through "contributions," becomes somewhat fuzzy once it is recognized that a person's benefits (or benefits of the person's survivors) are only partially based on the person's past contributions to the plan according to actuarial principles. Nevertheless, the classification in the text is convenient since the defining characteristics of the four categories listed correspond to different analytical issues.

4. In these calculations, I have added together spending under the headings health, education, and "social welfare" by all levels of government to get total welfare state spending, and compared this total with the overall spending figures, net of intergovernmental transfers. Historical data on the composition of government spending can be found in Leacy, Urquhart and Buckley (1983); more recent data are available in Statistics Canada's publications on federal, provincial and local government finance.
5. Another fundamental assumption in most economic analysis, which is also implied by my approach in this paper, is that in the long run it is not possible to deceive individuals into acting (or voting) against their own self-interest. Thus I do not discuss a suggestion often considered in analysis by political scientists of the welfare state, namely that provincial and federal governments use welfare spending as a method to compete for citizen attention. If the fundamental assumption is true, governments that play games leading to an outcome not desired by most of the citizenry would be voted out of office.
6. See OECD (1976a, 1976b, 1977).
7. The very low ratios for education in France, Germany and Japan appear to be due in part to demographic factors, but mostly to a relatively low cost of education reflecting relatively low teachers' salaries. With respect to health care spending, the very low figure for the United States reflects the fact that most health care costs in the early 1970s were paid for directly by patients or from private (rather than public) health insurance.
8. In Canada, this category consists mainly of Workmen's Compensation benefits. In many other countries, it includes programs of cash support to anybody who has been certified as ill.
9. The U.S. income maintenance system is similar to the Canadian one in devoting above-average shares to unemployment benefits and social assistance. However, a very large share of the U.S. total was accounted for by old age support ("Social Security"); this share was 73 percent in the United States versus about 39 percent in Canada.
10. In Belgium, the Netherlands, France, Germany, and Italy, social security contributions covered more than 60 percent of total spending on income maintenance and health care programs.
11. See Flora and Alber (1981).
12. This point is extensively discussed in M. Feldstein (1976, 1978). In the latter paper, he provides econometric evidence from the United States in the early 1970s suggesting that if the U.S. unemployment insurance benefit replacement ratio had been raised from 0.4 to 0.6, the "temporary layoff unemployment rate" would have risen by 0.5 percent, or about one-third of the observed temporary unemployment rate (p. 844).
13. There is an extensive literature on these issues. A number of well-known studies discuss and give evidence on possible inefficiencies in markets for private health insurance; see, for example, Arrow (1963) and Akerlof (1970). Part of the problem relates to the possibility of "adverse selection" (the price of private insurance becomes very high if people with high risks of illness are more likely to insure themselves than those with a lower risk), and of "moral hazard" (once a person is insured, he may change his behaviour in such a way that the risk increases). With respect to private provision of retirement income, P. A. Diamond (1977) points to the failure of private markets to provide indexed annuities, and cites statistics on the large number of retired people who apparently reach retirement age with few or no assets; he regards this as evidence both of market failure and of some degree of inadequate individual foresight with respect to their likely retirement age and their consumption needs after retirement. Finally, provision of insurance or retirement income through private finance may be very expensive in terms of marketing and administration costs, and may impose substantial search costs on buyers.

14. In the case of retirement income or nursing care for elderly people, an absence of government-run or subsidized programs would be likely to involve a larger role for intra-family arrangements, with adult children supporting and caring for their aged parents. The cost thus imposed on the young generation might be partially offset by larger inheritances from the old (since the old will have paid lower taxes during their earning years, and thus been able to save more), partially by lower taxes on the young themselves.
15. One consequence of the rapid *growth* of certain kinds of welfare state programs has been considerable life-cycle redistribution between generations: many programs provide full or partial benefits to today's old people even though they have not contributed to the programs in the past. As the programs mature, however, this kind of redistribution disappears as most older beneficiaries have contributed (through taxes or specific program contributions) when they were younger. For a discussion of income redistribution that emphasizes intergenerational issues, see Osberg (1985).
16. An explanation of the concept of the "excess burden" of taxation is provided in the fourth section of the paper.
17. There is a private sector counterpart to the public sector redistribution function, namely private charity. As I will discuss in the next section, however, in a modern industrial society private charity will be a very inadequate substitute for public redistribution programs.
18. In the extended family, there is an obligation on those who are strong and successful to take care of those who, for various reasons, are less capable, and to give financial support for education of younger family members or to those who are old and sick. The converse of these obligations, of course, is an implicit "right" of family members to financial support in specified circumstances, including the right to more or less permanent support for those who are incapable of supporting themselves. The role of the extended family as a substitute for the welfare state in such societies is evident from this interpretation.

    In recent Canadian debate, it has sometimes been argued that a program such as family allowances is useful because it alters the intra-family distribution of income between husbands and wives. This argument might be taken to suggest that the role of the nuclear family as an institution of mutual support and protection is gradually breaking down in industrialized societies, just as the role of the extended family has.
19. Furthermore, the role of private charity has become limited in scope: most of it involves very specialized areas such as support for particular kinds of medical research, or serves as a supplement to programs that derive most of their funding from public sources.
20. The declining role of religion in industrial countries may have contributed to this "diffusion of responsibility"; another factor may be the modern communications system, which has brought home to the average person the immensity of the problem of poverty and suffering on a global scale.
21. An interesting question that may be asked in this context is whether the extent of altruism on the part of potential donors is likely to be as great in a large impersonal industrial society with a great deal of occupational and residential segregation between poor and rich as it would be in smaller, closer knit communities. Evidence on the extent of volunteer work in Statistics Canada (1981) suggests that it remains strong in a substantial segment of the population: some 15 percent of the population of working age spent an average of about three hours per week in such work. Note that in volunteer work, the impact on the beneficiaries is usually direct and visible. For a statistical analysis of the determinants of volunteer work in Canada, see Vaillancourt and Payette (1984).
22. The classic paper based on this reasoning is Hochman and Rogers (1969); see also the discussion in Collard (1978) and references there. Collard provides an extremely interesting discussion of the recent literature on altruism as an efficient evolutionary response (chap. 5) and of the early literature (to which Adam Smith was a contributor) on the subject (chap. 6).
23. For a discussion of this literature and references, see again Collard (1978), chap. 11. Osberg (1985) provides a critique of the utilitarian approach to redistribution.
24. Rawls' procedure has sometimes been described as being based on individuals' judgments "from behind the veil of ignorance" (i.e., ignorance of what their position in society

would be). In predicting how individuals would choose, Rawls argued that they would be overwhelmingly concerned with the worst possible case ("What if I were to become the worst off among all the people in the society?"), and thus would prefer a social organization in which the worst-off person was as well off as possible; this turns out to imply a very egalitarian social welfare function.

One interesting aspect of the Rawlsian approach is that it provides a possible rationale for distinguishing between welfare policies aimed at equalizing *opportunities* (such as subsidized education, free dental care for children, or, at least to some extent, income support for families with children) and policies directly aimed at equalizing *outcomes* (such as a program of guaranteed minimum incomes). A person designing a welfare state from behind the veil of ignorance might argue that policies with the former objective are relatively more efficient in attaining more ex post equality because they have fewer undesirable incentive effects.

The Rawlsian approach is also discussed in Osberg (1985) and Rowley (1985).

25. This was not always the case. Under the British Poor Laws, the "paupers" who received public assistance lost their right to vote. (Flora and Heidenheimer, eds., 1981, p. 20).

26. The tax-transfer system was supposed to consist solely of a linear income tax, so that essentially the problem was to choose the marginal tax rate; the intercept is implied by the requirement of government budget balance.

27. The tax rate actually chosen under simple majority voting would be the one favoured by the person with median ability (the "middle person"). Loosely speaking, this means that the tax-transfer system will be highly progressive if ability is clustered toward the low end of the scale.

An excellent recent exposition and summary of the features of this type of model is Meltzer and Richard (1981), which also contains many references. For a discussion of median-voter models in a different context, see Rowley (1985).

28. Analysis of the emergence of the welfare state by political scientists or sociologists often proceeds in this type of framework. The sociologist T. H. Marshall of the London School of Economics has described political development in Britain as a process of gradual extension of the scope of citizenship rights: in the 18th century, civil rights (including the legal protection of property rights) were extended to all citizens; during the 19th century, political rights (the right to vote) moved toward universality. The process we are witnessing in the 20th century, according to Marshall, is the gradual establishment of an extensive set of "social rights," by which he means the rights to enjoy the benefits of the programs of the welfare state. (Flora and Heidenheimer, eds., 1981, p. 20.) Thus according to this view, the right to "free" medical care under a program of national health insurance is just another citizenship right, similar to each person's right to being protected by the police, for example.

29. There are exceptions. In his perceptive and illuminating essay titled *Equality and Efficiency: The Big Tradeoff*, Arthur Okun has emphasized the arbitrariness of assuming that individuals' access to most material goods and services should essentially be determined by what they are able to acquire through exchange in the market, in return for whatever productive services they happen to have for sale, while other things people value (such as the right to vote or freedom of expression) are allocated through a system of rights, not through exchange. (Okun, 1975, especially chap. 1.)

30. Note that Marxists have always regarded the social democratic movement as the most important obstacle to the ultimate victory of communism.

Another interesting question in this context is whether the distinction between "equality of opportunity" and "equality of outcome" is relevant in this context. If redistribution is seen as a response to altruism, policies aimed at the former are most naturally interpreted as an indirect (rather than direct) means to accomplishing the latter, and the policy choice rests on the relative cost-effectiveness of the two kinds of policies in increasing ex post equality. If the welfare state is looked at as a way of "bribing" disadvantaged groups into accepting a capitalist system, policies aimed at equalizing opportunity may be preferred simply because they serve this function more effectively. The lack of emphasis on the distinction between these types of policies in this paper implies a value judgment that what ultimately should count in assessing the effectiveness of the welfare state is ex post equality of outcome.

31. The analysis of various forms of lobbying activity has recently been attracting increasing interest among economists, under the name of "rent seeking." Tollison (1982) provides a useful survey. For a pessimistic recent analysis of the consequences of the increasing role of politics in economic life, see also Thurow (1980) and Courchene (1980). A disturbing suggestion recently made by Usher (1981) is that not only will this trend in democratic political systems ultimately destroy the basis for capitalist economic organization, but the decline of capitalism will ultimately spell the end of democracy.

32. The best source on the historical background that I have found is Guest (1980); the rest of this section draws heavily on this source.

33. The provincial authority was indirect and derived from the fact that the following areas were defined as falling under provincial jurisdiction: "(7) The Establishment, Maintenance and Management of Hospitals, Asylums, Charities, and Eleemosynary Institutions in and for the Province . . ., (8) Municipal Institutions in the Province, . . . (13) Property and Civil Rights in the Province, . . . and (16) Generally all Matters of a merely local or private nature."

    Guest (1980), p. 34 provides an illustration of the limited role of the federal government in the area of old age pensions: "By 1900, the only initiative taken by the federal government was to extend the hours of post office savings departments on Saturday evenings from 7:30 to 9:00 p.m."

34. Either income-testing or financing of the program through some form of contribution scheme could be seen as infringing on sections (13) or (16) cited in note 33. The universal tax-financed scheme was seen as constitutional under the federal "spending power" clause.

    During its first two years (1944–46), the program was ex post selective in the sense that part or all of the benefits were recovered from high-income families through special provisions in the income tax. However, the reduction in benefits roughly corresponded to the amount of a child tax credit for which families with children were eligible at that time. Thus, the combined effect of the family allowance benefits and the tax credit was effectively similar to a program of universal benefits. The benefit recovery system and the child tax credit were both scrapped in 1946. (I am grateful to Jonathan Kesselman for drawing these points to my attention; for more detail, see Kesselman 1979, pp. 662–63.)

35. It is of course true that the BNA Act was amended at the time OAS was introduced, and that the federally administered CPP is based on contributions. The point here simply is that the provinces may originally have been more willing to agree to the amendment because the OAS would in fact not be inconsistent with sections (13) and (16). Furthermore, part of the 1965 agreement to further amend the BNA Act when the CPP was introduced involved the right for a province to opt out of the CPP and set up its own scheme, as Quebec has done.

36. In spite of this provision, Ontario has a system of partial premium financing under which people with low incomes are exempt. The argument, presumably, would be that the premium is the same for everyone, it's just that some people don't have to pay it.

37. The reform was quite thorough: the "earnings replacement ratio" was raised from 43 percent to 66.6 percent (and higher for claimants with dependants), and the earlier rule that claimants were entitled to one week's benefits for each two weeks previously worked was replaced by one specifying a maximum of 44 weeks of benefits for a minimum of eight weeks worked.

    For a very detailed discussion of the history of Canadian unemployment insurance, see Kesselman (1983).

38. The minimum number of weeks a person has to work before becoming eligible for benefits was increased from eight to anywhere from ten to fourteen weeks (depending on region), the earnings-replacement ratio was reduced from 66.6 percent to 60 percent, and the rules specifying the maximum number of weeks of benefits were made considerably stricter, especially for seasonal workers.

39. I have been told that some financially pressed municipal governments have arranged make-work programs for social assistance recipients, lasting just long enough for the workers to qualify for UI benefits.

40. In most provinces, regulations are such that it is very difficult for families earning income from work to get social assistance support, even if their incomes from work are very low (see Hum, 1983, p. 43). The desirability of having a system that would be fair to the "working poor" was one reason why the issue of welfare reform received so much attention in both Canada and the United States during the 1970s.
41. The complexity of the issues, as well as the wide range of conclusions that are possible, is well illustrated by the discussion in Breton and Scott (1978), Chapter 11. More recently, the problem has been debated by Usher (1980) and West and Winer (1980), who reach very different conclusions on the question of centralization. Banting (1982) provides a comprehensive discussion from a political science point of view.
42. Whether or not this presumption holds in any particular situation may depend on the inequality measure used, as well as on the shapes of the intra-province distributions. Intuitively, however, significant differences between provincial averages ought to be sufficient to validate the presumption in "sensible" cases.
43. Breton and Scott (1978) use the term "empathy" rather than "altruism."
44. The most controversial provision in the Canada Health Act, however, was the effective banning of physician "extra-billing" and of hospital user charges.

    Residency requirements were extensively used by financially hard-pressed municipalities and provinces during the Depression, in order to discourage inflows of transient unemployed in search of relief. It is also used by the federal government in the Old Age Security Program to discourage an inflow of older people from abroad; this requirement has recently been made more stringent (see Banting, 1982, p. 97). The net impact of the new rules is complicated by offsetting changes in GIS regulations, however.
45. An interesting analysis of redistribution under conditions of mobility is Pauly (1973); Breton and Scott (1978) also discuss the problem extensively.
46. Jonathan Kesselman has suggested another possible explanation to me: that the apparent increase in support for redistribution is due in part to public confusion between social insurance programs and redistribution, with a good part of the confusion resulting from the very complicated financing and eligibility rules for social insurance systems such as unemployment insurance. In other words, people support UI expansion as social insurance; because of the way it is financed and administered, however, the UI expansion has resulted in a substantial increase in redistribution.
47. For an interesting discussion, see Banting (1982), pp. 110–16.
48. Okun (1975).
49. Mendelson (1979), p. 74. Mendelson estimated average administration costs for different time periods, and the figures given represent the range of these estimates. The figures for the first four programs were derived on the basis of Ontario data.
50. Under the cash deficit method, the state pays the difference between the guaranteed minimum income and the person's actual income.
51. This disincentive effect is of course no different from the "moral hazards" that would cause problems in a system of private unemployment insurance as well. However, the potential problems are likely to be more severe in a system of insurance available on essentially uniform and subsidized terms in all industries, regardless of risk of unemployment, and furthermore, in a system that does not seem to have particularly effective provisions to recognize and deal with moral hazard issues.
52. This problem largely disappears, of course, if unemployment insurance premiums are actuarially fair; I will return to this issue in the next section.
53. A comprehensive summary of U.S. studies of the incentive effects of transfer programs is Danziger, Haveman and Plotnick (1981). On average, they estimate that labour earnings of recipients decrease by about 23 cents for each dollar of transfer in the U.S. system; a comparison of their Tables 1 and 7 indicates that the predicted earnings reduction would be somewhat larger for each dollar transferred specifically to the poor ("welfare" transfers).

    There have been many empirical studies of the quantitative importance of the incentive effects of unemployment insurance (useful summaries are provided in Cousineau (1985) and Grubel and Walker (1978)). From a Canadian viewpoint, several studies have attempted to estimate the effects of the 1971 reform of the Canadian UI system referred

to above. The results indicate that the measured unemployment rate rose by anywhere from 0.5 to 1.3 percentage points as a result of the reform. (Bodkin and Cournoyer, 1978, p. 84.) Part of the increase in observed unemployment appears to be due to increased labour force participation in response to increased UI benefits (Swan 1975). The work done by people who would otherwise not be in the labour force may be considered a gain to the economy, unless it involves a reduction in work outside "the labour market" (such as in the home).

54. If we had some way of independently measuring a person's native ability, we might use a measure of ability as a basis for determining the individual's tax liability. This would preserve the advantage of lump-sum taxation, and would also be "equitable," since it would in fact imply a higher tax liability on those with higher income (since people with more ability would presumably be able to earn higher incomes). In practice, however, there is no reasonable way of independently measuring ability.

55. Kesselman (1982, p. 252) suggests a figure as high as 6 percent of total revenue for the U.S. income tax, not counting the various "incentive costs" listed above.

56. The marginal concept is more interesting from a policy point of view, since policy must necessarily be concerned with possible changes in government programs that individually account for only a relatively small part of the government's overall budget.

    In a recent study using general equilibrium techniques, Ballard, Shoven and Whalley (1982) estimate the average excess burden at between 13 percent and 22 percent, and a marginal excess burden of between 34 cents and 48 cents per dollar of additional revenue in the United States. Another recent comprehensive U.S. study is Stuart (1984). For his "base case" he obtains a marginal excess burden of about 25 percent (at an average marginal tax rate of 46 percent); however, his estimate rises substantially when he assumes a somewhat higher elasticity of labour supply than in the Benchmark case. Neither of these studies takes account of additional administration and compliance costs. Usher (1982) obtains a much higher value for the marginal excess burden, while an earlier estimate by Browning (1976) was lower. It is interesting to note that in the popular discussion of the Laffer curve, it was suggested by some that tax rates were already as high as they could usefully be: raising tax rates would not increase revenue. If this were true, the marginal excess burden would be infinitely large.

57. It is sometimes suggested that transfers in kind exist because taxpayers may be more willing to pay for specific goods provided to the poor than to simply transfer money to poor people. If that is so, the $30 in the example does not represent pure waste (although it still reduces the value of the transfer to the poor). Another possible explanation for transfers in kind is that they are supported by interest groups representing those who supply the goods being transferred; an excellent example is the self-interested lobbying by organizations representing university professors for more government money, under the guise of supporting the abstract principle of "universal access to post-secondary education." Resources used in such lobbying add to the waste in the example.

58. Better educated children today are also likely to mean fewer low-income welfare recipients and more high-income taxpayers tomorrow. Thus free education can be partly seen as an investment by today's taxpayers in those of tomorrow. Notice also that this argument may be related to the distinction between equality of opportunity or equality of outcome (touched upon in notes 24 and 30 above): subsidizing education may be a cost-effective way of (indirectly) increasing ex post equality of outcome because it increases ex ante equality of opportunity.

59. Evidence from U.S. studies indicates a relatively low price elasticity of demand for health services; see P. Feldstein (1983), pp. 96–99. For an eloquent statement of the position that user charges are inefficient, see also Barer, Evans and Stoddart (1979).

60. An extensive summary is provided in Bish (1985).

61. There are several reasons. First, under the U.S. federal programs of Medicare and Medicaid, a large portion of U.S. health services is in fact paid for by the government, at what are essentially politically determined prices. Second, the American Medical Association is one of the most powerful lobbies on the U.S. political scene, and has managed to obtain special laws and regulations that have greatly reduced the extent of competition in the market for health services (in part by retarding the development of prepayment plans that have been shown to be able to produce health care at relatively

low cost). Third, the fact that employer provision of health insurance is treated as a non-taxable benefit implies an indirect subsidy to health care, increasing the demand for it.

62. See Bird (1976) and Kesselman (1983, 1985). Elsewhere (Blomqvist, 1979), I have argued that with appropriate safeguards, it may be efficient to transfer at least part of the insurance function currently performed by our provincial health insurance plans to the private sector. A substantial part of the efficiency gain that I would foresee from such a move could be realized by a move to public sector premium financing, however, so I will not discuss the privatization issue here.

63. In some circumstances, it might be efficient to allow differential premiums for people or firms in different risk categories. In the case of unemployment insurance, Kesselman (1983, 1985) has argued that insurance premiums charged to employers should differ by risk of unemployment in different industries, in order to eliminate the subsidization of seasonal and intermittent employment that is implied by the present UI system. For a discussion of the problems that arise in a system of premium differentiation by risk in health insurance, see Blomqvist and Horn (1984).

64. For a detailed discussion justifying this recommendation, see Kesselman (1979).

65. I will implicitly assume, in fact, that the entire tax system (including sales taxes, etc.) can be represented by a hypothetical broadly based income tax.

66. In current writing, the version of a negative income tax that is attracting most attention is called a "credit income tax," or CIT. For a detailed description of a CIT, see Kesselman (1982, 1985).

    The negative income tax concept goes back a long time; while it is often credited to Milton Friedman in the early 1960s, Kesselman and Garfinkel have shown that the concept is implicit in the 1943 proposals by Lady Rhys-Williams for a scheme involving a "social dividend" (Kesselman and Garfinkel, 1978).

67. Note that with a high basic negative tax and a moderate "implicit marginal tax rate," taxpayers would not start paying positive taxes until they reached a fairly high income. With a relatively few taxpayers paying positive taxes, the tax rates on this group would have to be very high.

68. A simple and elegant demonstration of the advantages of such a system is provided in Akerlof (1978).

69. The classic paper is Mirrlees (1971). The extreme implication that the marginal tax rate in the highest income group should equal zero is proven in Sadka (1976). A non-technical discussion is found in Meade (1978), chap. 14.

    Of particular interest are the results in a paper by Sadka, Garfinkel and Moreland (1982), in which they give hypothetical numerical estimates for the structure of marginal rates in a tax system with only two different marginal rates, one for the poor and one for the rich. They find very substantial efficiency gains from a tax structure with a considerably higher marginal rate at the low end, in comparison with a structure involving a uniform marginal rate (or, a fortiori, with a structure involving a higher marginal rate for the rich). See also Arrow's "Discussion" of the Sadka/Garfinkel/Moreland paper on pp. 319–23 in Garfinkel (1982).

70. Jonathan Kesselman has drawn my attention to the fact that in the academic debate on these issues, "selectivity" has typically been defined to imply potentially stigmatizing eligibility tests, so that programs with equal gross benefits to all recipients but subsequent benefit recovery through the tax system would be considered universal, not selective. I suspect that many of those who argue against universality in the popular debate would not consider such programs as universal, so that the disagreement between the two camps may not in fact run as deep as it seems.

    An issue I do not consider in this context is the "take-up rate" of welfare or transfer programs; the reason is that the problem of incomplete take-up rates is mostly associated with prior eligibility or income tests, and not with the kind of ex post benefit recovery through the tax system that I favour. Another issue I also sidestep (here and throughout the paper) is the role of universal welfare programs in modifying the intra-family distribution between husbands and wives. As previously noted, much of the strong opposition to abolition of universal family allowances in the early 1970s came from women's groups.

This issue, and others such as the role of the "married exemption" in the income tax, are inextricably intertwined with the question of whether the individual or the family should be the taxpaying unit and with the perception of the role of the family as a social institution; it is clearly too broad (and too difficult) an issue to be dealt with here.

71. A recent and comprehensive summary of the debate is provided by Mendelson (1981); the discussion in the next few paragraphs draws heavily on Mendelson's work.

72. The credit is reduced by 5 percent of the amount by which family income exceeds $26,330. For a family with two children with a credit of $686 ($343 x 2), the credit becomes zero at an income of $40,050.

    Note, however, that if the allowable deduction from taxable income for dependent children is considered part of the system, the extent to which the overall benefits are concentrated on low-income families is much smaller.

73. For a critical discussion of the refundable child tax credit in its present form, see Kesselman (1979).

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Theoretical Issues in Tax Reform

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Tax Reform: An Overview of the Issues

Tax reform generally refers to a restructuring of the tax system. Specifically, reform is taken to mean a wider set of changes in the tax system than would normally be found in a typical budget. Also, tax reform usually concentrates on structural aspects of the tax system and ignores certain related issues such as short-term cyclical considerations, the size of government revenues and deferred taxes (deficits) as opposed to current taxes. Tax reform is usually guided by general principles as to what constitutes an ideal tax system, but pressures for tax reform may and do come about on the basis of more practical concerns. Also, tax reform takes the existing system as its starting point. It is concerned as much with "getting there from here" as with defining "there."

The contents of this survey provide a synopsis of the tax reform issues that were discussed at the seminar on tax reform held by this Royal Commission on July 19, 1984. A companion paper on the tax reform process has been prepared by St-Hilaire and Whalley (1985). We have drawn on the papers presented at that seminar as well as on the commentaries of those attending; the papers presented and the names of the participants are listed in an appendix. The issues in tax reform cover a wide variety of areas, and we have had to restrict the scope of this survey in a variety of ways. For example, much of our discussion will be in the context of federal taxes, although similar principles apply to provincial taxes, which tend to be of similar sorts. Local taxation (i.e., property taxes and various user charges) is not discussed, since an entire paper devoted to it has been prepared by Kitchen and McMillan (1985). Moreover, the discussion does not deal with aspects of federal-provincial tax harmony, which are treated

in Boadway (1985). Nor is there any discussion of tariffs, which are not a major revenue source; their role is that of fostering industrial objectives in Canada and is considered elsewhere in the Royal Commission's research. We have included some discussion of transfers as well as taxes, although these were not explicitly discussed at the seminar, because they can be viewed as an integral part of the personal tax system.

This section of the paper highlights the main issues in tax reform. The issues are then discussed in further detail in subsequent sections.

Personal Tax Reform

The fundamental issue in personal tax reform is the choice of the tax base. Until recently it was assumed that the ideal personal tax base was income comprehensively measured to include all sources of accrued and imputed income in real terms. This view of income as the index for ability to pay or well-being goes back to Haig (1921) and Simons (1938), and formed the basis for the recommendations of the report of the Royal Commission on Taxation (1966), "the Carter commission." In recent years, this view has been challenged by those who would advocate total personal consumption as the ideal tax base, a suggestion that was popularized by Kaldor (1955). The proponents of this latter view, who include the authors of the U.S. Treasury's *Blueprints for Basic Tax Reform* (1977) and the Meade committee (1978) in the United Kingdom, make several arguments in favour of the consumption tax. Some argue that because consumption is the ultimate source of well-being, it is a more equitable tax base. Others argue that the consumption (or expenditure) tax is much simpler to administer since it requires no indexation or measurement of accrued income. It also has significant efficiency effects, since unlike an income tax it does not distort the decision to save. It has also been argued that the consumption tax is like a Haig-Simons comprehensive income tax but defined over a household's lifetime rather than a year. These matters are fully discussed in the second section, where it is argued that the existing personal tax system has many of the significant features of a consumption tax, though without taking full advantage of the simplifications possible. These features include the existence of various means of sheltering savings (registered retirement savings plans, registered pension plans, etc.) and various ways in which capital income is exempt from tax.

Another major issue in tax reform is base-broadening, which takes on a completely different importance depending upon whether one views income or consumption to be the ideal tax base. Base-broadening is especially attractive to those who view income as the ideal tax base, and was one of the main objectives of the Carter commission. More recently, flat-tax proponents have adopted base-broadening as one of their key objectives. The need for base-broadening has arisen because when the income tax was introduced, "income" was defined very narrowly to include only

regular cash receipts. As the concept of income was widened, special exemptions and deductions ("tax expenditures") grew. Broadening the base to approximate comprehensive income more fully is seen as both efficient and equitable. It would include such reform as fully taxing capital gains, abolishing tax-sheltered saving devices and taxing the imputed value of rental income on owner-occupied homes. Some reformers would go as far as taxing the imputed value of spousal services in the home. A good number of these base-broadening measures would involve bringing into the tax base elements of capital income that currently are untaxed or partially taxed, and abolishing sheltered savings that permit capital income to accrue tax free. These are precisely the items whose exclusion renders the tax like a consumption tax. Those who favour the latter would see only limited merit in base-broadening of this type.

A tax reform issue that emerged during the 1970s is indexation. At one level, this involves simply adjusting the brackets and exemptions of a graduated personal income tax (PIT) for changes in the price level to tax "real" income the same over time and avoid "bracket creep." Another problem which involves greater administrative complexity is the appropriate definition of capital income, particularly interest and capital gains, under inflation. (See Howitt (1985) for a discussion of these issues.) A component of these receipts is not really income, but offsets the reduction in the real value of the asset due to inflation. The Canadian government solved the bracket creep problem by introducing statutory indexation of the PIT rate structure. Only ad hoc steps such as the investment income deduction or complicated piecemeal steps such as the indexed security investment plan have been taken on the second problem. A fully indexed PIT would include in the tax base only the real returns from financial assets. In the case of bonds that are not indexed, this could be accomplished by including nominal interest receipts as taxable income, but deducting an amount equal to the inflation rate times the value of the assets held. In the event that bonds are sold for capital gains, only the real capital gain should be taxed (i.e., the nominal capital gain less the product of the inflation rate and the cost of the bond). For equity holdings, similar principles apply. Only real dividend income ought to be taxed as well as only real capital gains. In principle, these real capital gains ought to be included as they accrue rather than as they are realized. In addition, negative capital income (e.g., interest costs, capital losses) ought to be treated symmetrically with positive capital income. Again, this second problem exists only to the extent that capital income is taxed. As suggested above and discussed in the second section, one of the merits of a consumption tax is that indexation of capital income is unnecessary.

Simplification is another major PIT reform issue. There is a prevailing view that the tax structure, particularly the PIT, is far too complicated, and is understandable only to a small group of tax lawyers and accountants. This supposedly leads to problems of non-compliance and tax

avoidance because "others do it" with the help of the lawyers. Some estimates of the so-called "underground economy" (income-generating activities that go untaxed) in the United States indicate that it may be as large as 10 percent or 15 percent of GNP. Tax simplification would, it is argued, reduce the scope and incentive to avoid taxes by closing loopholes and lowering rates. The extreme case of tax simplification is the so-called flat-rate tax proposal, which involves a broadened base with a personal exemption and a single tax rate that applies to all income. The use of a single rate simplifies the tax but at the expense of reducing progressivity. In addition, flat-rate tax proposals generally require significant base-broadening to achieve their objectives. In some proposals, this compromises the simplicity objective (since all forms of capital income must be brought into the base and in an indexed form), and proposal of Hall and Rabushka (1982), which effectively advocates a flat-rate consumption tax by exempting reinvested business income, is an exception.)

Further simplification is possible through tax consolidation. This could be achieved on a tax-by-tax basis, or across levels of government. In Australia and New Zealand, for instance, social security taxes and related contributions such as health care premiums are now consolidated into the income tax. This simplifies the tax system but removes the contribution-based financing system for social services such as hospital insurance, unemployment insurance and the Canada Pension Plan.

Also, part of the complexity of our tax system reflects the differing financing needs of the various levels of government. The property tax is the mainstay of municipal governments. Provinces have the retail sales tax, and in the last few years have been opting out of the tax sharing agreements for the corporate tax. More centralized countries that are closer to a unitary state than Canada — countries in Europe, for example — have a greater ability to simplify their tax system by eliminating or reducing local taxes.

Business Tax Reform

Business income, which is equal to revenues less deductible costs, accrues both to unincorporated firms and to corporations. In the former case, the income is taxed directly as personal income of the owner at the personal level. The manner in which it should be taxed depends on whether the base is income or consumption. As discussed in the third section, with income as the tax base, business income ought to be taxed on an accrual basis, while with consumption as the base, business income should enter on a realization or cash-flow basis. Thus taxing consumption rather than income provides yet another source of simplification.

Corporate income is eventually distributed to the owners of the corporation as dividends, and is taxed there under the personal income tax. The anticipation of future dividends also leads to capital gains that are

partially taxed as they are realized. The question naturally arises as to what is the purpose of taxing business income separately through a corporation income tax (CIT), given that the same income is eventually taxed in the hands of the owners. The issues here have not, until recently, been clearly defined. In the Carter report, the role for the CIT was that of a "withholding tax" that could tax elements of income that may be deferred (such as retained earnings) or could escape Canadian taxes altogether (such as capital income accruing to foreigners). In this view, the CIT should be fully integrated with the PIT through a system of tax credits.[1] Other reformers have viewed the appropriate role for the CIT to be a tax on pure profits.[2] Such a tax could be used to tax differentially economic rents ("unearned" incomes not needed to keep inputs in production) in the economy. One of the advantages of a tax on rents is that it is a fully efficient (non-distorting) means of raising revenue. The appropriate use of the CIT as a withholding tax and as a pure profit tax are discussed in the third section.

Reform issues related to the CIT revolve around these objectives. To prevent incorporation of small, closely held businesses for tax purposes, the "tax reform" budget of November 1981 fully integrated the PIT and CIT for these firms (thus an owner would pay the same taxes whether incorporated or not). Improved integration measures for large businesses to prevent multiple taxation of corporate-source equity income or to avoid tax credits on distribution of untaxed corporate income are potential future reforms.

Indexation measures provide potential reforms at the CIT level as well as at the PIT level. Historic value capital-cost allowances and historic first-in first-out (FIFO) inventory costing are inadequate to capture the cost of capital in the presence of inflation. A properly indexed CIT would base capital cost allowances on replacement values, and index inventory deductions. In the past, various ad hoc measures such as accelerated depreciation and the inventory cost deduction have been used partially to offset inflation. Also, interest deductions based on nominal interest rates are excessive when such interest rates incorporate inflation premiums; only real interest costs should be deductible.

Compliance costs of the CIT are thought to be "large," so simplification has been an important objective of reform. Some steps have been proposed at the small business level. Considerable simplification is possible by adopting a cash-flow base for the CIT which would allow capital expenses to be deducted when incurred. Like its consumption tax counterpart at the personal level, a cash-flow CIT would be inflation-proof and relatively simple to administer. Cash-flow taxation is an ideal form of tax for capturing economic rents in a non-distorting way. It would, however, increase the problem of refundability (resulting from negative tax liabilities), and may seriously erode the revenue-collecting capacity of the CIT unless rates are substantially raised. Also, it poses a problem for inter-

national firms that may take (refundable) losses in Canada but pay taxes abroad.

A separate but related problem is the taxation of resource industries. Capturing resource rents is a major objective of resource policy in Canada along with resource management, risk-sharing and other objectives. Resource rents have been captured by various means including non-tax measures such as royalties, lease auctions, public ownership, and controlled prices. Many potential tax reforms in this area involve rationalizing this multitude of rent-capturing devices through the tax system. An endemic problem in capturing rents through taxation is allowing for cost deductions. If no cost deductions are allowed, the resource tax will discourage extraction. If costs are deducted, there is an incentive to funnel rents out of the firm in a manner that is deductible (e.g., high managerial salaries).

In tax reform, federal-provincial relations are a recurrent problem, and this is no less true for resource taxation. Much of the federal-provincial wrangling in the 1970s concerned sharing of resource rents. National reform of resource taxation is made difficult by the conflicting elements in rent-sharing. Federal-provincial cooperation would make it possible to capture a larger fraction of resource rents with less distortion of the extraction decisions. However, it would require considerable negotiation on rent-sharing arrangements.

Sales/Excise Tax Reform

Although indirect taxes have been declining in relative importance, they remain important in terms of absolute revenues, particularly at the provincial level. The federal government levies the manufacturer's sales tax (MST) on a relatively narrow base of commodities. A major reform proposal is to broaden this tax by moving it to the wholesale level (as proposed in the November 1981 budget) or to the retail level. It is likely that the latter would be resisted by the provinces, which view retail sales taxes as their traditional territory. Alternatively, the MST could be broadened and changed in form, but not in substance, by levying a value-added tax (VAT). The VAT collects the revenue on value added at each stage of the production process, and is ultimately equivalent to a retail-level sales tax. A more radical reform is to abolish indirect taxes at the federal level altogether and replace the lost revenues with higher direct (income) taxes, or equivalently, to turn over indirect taxes to the provinces in exchange for a reduction in provincial tax points.

The VAT is a frequently advocated reform in this area. The United States is seriously considering it (which would make it difficult for Canada not to levy a similar tax). Also, there is much dissatisfaction with the MST in Canada both because of its administrative complexity and because the base has been eroded to the extent that the tax is a major burden on a narrow set of economic activities.

The imposition of a VAT in the United States, particularly if it is introduced in conjunction with a phasing out of the CIT, would have major implications for Canada. VATs, like the MST, are usually levied on a destination basis, so the VAT is rebated on exports and imposed on imports. If such a destination-based tax were to replace the origin-based CIT (or to lead to the elimination of the U.S. foreign tax credit on the CIT), there would be important tax revenue effects for Canada.

One desirable feature of the VAT as viewed by the revenue authorities is that exemptions are difficult to administer, unlike those for the MST. Consequently a broadly based VAT may be relatively immune to base erosion, although the European experience indicates that such hopes may not be realized.

Special Tax Reform Issues

Special issues that arise when tax reform is under consideration include the following:

- *Transition* — The contemporary focus of tax reform is the taxation of capital income. By their nature, such reforms pose transition problems. Altering the way taxes impinge on capital incomes will alter the values of the corresponding assets, and give rise to large windfall gains and losses. In some cases, the distribution of such windfalls may be arbitrary or inequitable. Offsets to windfalls would require complicated procedures over a lengthy period. The simplest way to achieve partial offsets might be to levy a supplementary capital gains/loss tax over a transition period. In any case, it is not obvious that the one-shot costs of transition would outweigh the permanent benefits of capital tax reform.
- *International considerations* — As an open economy, Canada cannot ignore the international aspects of taxation. Tax reforms that ignore the movements of goods and capital across borders, particularly the Canadian-U.S. border, may impose costs rather than garner benefits for the country. Improperly designed reforms may erect trade barriers, discourage foreign investment, transfer revenues to the U.S. Treasury, or worse. Also, tax treaty arrangements impose very real limitations on the types of beneficial reforms that may be accomplished. In some cases, beneficial tax reforms may require negotiations with the United States and other tax-treaty countries to be properly implemented.
- *Federal-provincial issues* — These issues are similar to the international considerations but more widespread. Unilateral reforms by one level of government can invite retaliation by other levels that negate the gains of reform and augment the losses. There are mutual benefits that can be obtained through cooperative tax reform. Unfortunately, beggar-thy-neighbour considerations may dominate unless some explicit federal-provincial body is formed to deal with tax reform issues.

• *Refundability* — A key concern with both the CIT and the PIT is the treatment of situations in which the tax owing is negative. Economists have long argued that the tax system should treat losses symmetrically with gains. In the case of the CIT, a system of loss offsetting is essential to prevent the tax from discouraging the taking of risk. With the PIT, refunding negative taxes fosters the redistributive aims of the tax system, and allows for a rationalization of the tax system with other transfer programs. One way in which the tax system can pursue these aims is by making negative tax liabilities refundable. There are, however, administrative difficulties with full refundability, and rates would have to be raised, perhaps substantially, to offset revenue losses. Also, refundability provisions would have to be designed to discourage international firms from taking losses in Canada while paying taxes abroad.

Personal Taxation

Personal taxes include both the individual income tax and various payroll taxes, mainly unemployment insurance (UI) contributions and Canada/Quebec Pension Plan (C/QPP) contributions. These taxes are by far the largest sources of revenue for both the federal and the provincial governments. The personal income tax has been on the agenda of tax reformers for a considerable part of the postwar period. Until the mid-seventies, the prevailing wisdom was that a tax system should be, first and foremost, equitable. A comprehensive income tax discussed below was considered the most equitable tax instrument. This view reached its peak in Canada with the Carter report in 1966, but had previously been supported in the United Kingdom by the final report of the Royal Commission on the Taxation of Profits and Income in 1954.[3] The Carter report stated that a comprehensive income tax was the ideal equitable tax, and should be relied on for the bulk of revenue-raising. Of course, the tax envisioned by the Carter report differed from the income tax in existence at the time. It would be broadly based, treating all sources of income on an equal footing, and its rate structure would not be as steeply progressive.

In the late seventies, two documents appeared that sharply questioned the wisdom of comprehensive income as the basis for personal taxation. Following the celebrated book by Kaldor (1955), the U.S. Treasury's *Blueprints for Basic Tax Reform* (1977) and the Meade report (1978) in the United Kingdom recommended adoption of a tax on consumer expenditures (albeit for different reasons), referred to hereafter as a consumption tax. The advocates of this tax argued that not only was it a more equitable tax, but it was also simpler to administer, and had desirable efficiency properties as well. In particular, it would encourage savings, and thereby increase capital accumulation.

Much of the discussion of tax reform centres around the issue of the ideal base — comprehensive income or consumption — a question that will be reviewed in detail in this section. There have, at the same time, been a number of other prominent themes in the literature. One of these concerns how broad the base should be; that is, what exemptions and deductions should be allowed. This is not unrelated to the income vs. consumption tax debate, since a good number of the deductions under the income tax have the effect of moving the system toward a consumption base. Another issue has to do with the rate structure. How progressive should the chosen tax be? This has taken its starkest form in proposals for the so-called flat-rate tax. Yet another issue concerns the redistributive properties of personal taxation and the relation of the personal tax system to the system of transfers and social insurance. All of these themes will be touched on in this section.

The discussion begins with a review of the principles of tax design, that is, the arguments concerning the ideal tax system. This is followed by a review of the existing personal tax system in light of these ideals. Finally, some discussion is presented on the various suggested reforms and their feasibility.

Principles of Tax Design

The most useful way to approach tax reform is to identify an ideal or benchmark tax structure, designed on the basis of specific objectives. The existing tax can then be compared to the benchmark tax to identify potential reforms.

The three main criteria for judging taxes — equity, efficiency and simplicity — will be applied here. The study of personal tax design can be divided into two sequential issues, the choice of a tax base and the choice of a rate structure to apply to that base. Each of these is considered in turn.

The Choice of a Personal Tax Base In principle, a wide variety of personal tax bases can be imagined. However, two have dominated the debate to date, comprehensive income and consumption. A careful consideration of each will serve as a bench-mark for evaluating the existing system. Comprehensive income is defined as the sum of current consumption plus all accretions to the net worth of a taxpayer.[4] Rather than measuring these directly, it is conventional to attempt to measure all the sources of income from which consumption and net worth accruals are generated, including the following:

- wage and salary income;
- interest, dividends, capital gains, and rents earned on assets held, less the fall in the purchasing power of the asset due to inflation;

- imputed rental income on assets held that yield services directly to the consumer, such as consumer durables (e.g., owner-occupied housing) and cash balances;
- forms of imputed income that do not pass through the market, such as the value of household labour and the imputed value of leisure; and
- accrued income from unincorporated business.

Most who advocate comprehensive income as a tax base do so mainly on equity grounds, that comprehensive income reflects a taxpayer's "ability to pay." This, of course, reflects a normative judgment that may be disputed. The perceived difficulties of the income tax are twofold. First, looked at from an efficiency point of view, the tax as it is actually levied imposes distortions on several key markets in the economy. Since the tax is on the income generated by productive factors of production, it imposes a wedge between the value of output produced by a factor and the net return received by the owner. There is a presumption, therefore, that too little of the factors — including labour, saving and risk — will be supplied. Second, and perhaps more important, a comprehensive income tax is very difficult, if not impossible, to administer. To do so requires that capital income be included in the base as it accrues, that the imputed rental from durables be included, that capital income be fully indexed for the fall in asset values due to inflation, that the true depreciation on assets held to produce business income be measured and deducted, and that all forms of imputed income be included in the tax base. Since most of these are impractical to achieve on administrative (or political) grounds, actual income tax bases will be far from comprehensive, and the inevitable results will be in inequities and inefficiencies. For example, the difficulty in measuring and including the imputed rent on housing will bias the system in favour of owner-occupied housing relative to other assets. Similarly, the absence of indexation of capital income because of administrative complexity implies that inflation imposes a further distortion against saving.

One of the great merits of consumption taxation is that it avoids most of these administrative problems. The ideal consumption tax is in most respects feasible. However, the traditional case for consumption taxation rests on equity grounds. For one thing, the consumption tax is levied on what one removes from the "social pot" rather than what one contributes. For another, the consumption tax treats one dollar's worth of consumption equally, regardless of whether consumption takes place in the present or in the future. The income tax favours present over future consumption, since it taxes the rewards from forgoing present consumption (by saving) to generate future consumption.[5]

The ideal consumption tax base is the current flow of consumption services whether from non-durables or durables. This base is very difficult to measure directly, but there are ways of defining a tax base that are equivalent in present-value terms and much simpler to measure. The first

of these is to define the tax base as expenditures on consumer goods on a cash-flow basis, sometimes referred to as an expenditure tax base. According to this definition, the tax base would be income on a realization basis less current net savings. In practice, the system would work in a manner similar to registered retirement savings plans (RRSPs). Savings deducted from income would be registered and would accumulate capital free from income tax. When funds were removed from the plan, both principal and interest would be fully taxable. Taxpayers would be at liberty to arrange their savings and dissavings as they wished. We refer to assets treated in this way as registered assets.

The registration of savings would be a suitable way to treat savings in the form of assets which yield a monetary rate of return. However, some assets such as housing and other durables yield an imputed rent that is difficult to measure and therefore to account for on a registration basis. Another base that is equivalent to the consumption or expenditure base is all non-capital income. Since the purchase price of an asset can be expected to equal the present value of future principal and interest payments, not deducting the purchase of an asset in the tax base and not including its future returns is equivalent to deducting the purchase of the asset and including the future stream of interest and principal. This means that an alternative way to treat savings is not to register them, and not to tax their return. In the case of housing, down payments, principal and interest would not be deductible from the tax base, while the imputed rental services of housing would not be included in it. In this case of non-registered savings, taxes are said to be "prepaid."

Allowing non-registered savings in the tax system alongside registered savings is important for three reasons. First, all assets whose return takes an imputed form (durables, cash balances) should be treated as non-registered savings. Second, since registration requires that records be kept of all assets held in this form, taxpayers may for administrative reasons find it easier to carry some assets in non-registered forms. Third, the ability of taxpayers to choose either registered or non-registered forms of savings allows them to average their tax base over their lifetime in any manner they wish. This is useful when the rate structure is progressive.[6] The similarities and differences between the comprehensive income tax and the consumption tax are shown in the table below.

In addition to the equity arguments for the consumption tax, the tax is considerably simpler to administer than the income tax, and has some efficiency advantages. Although income must be accounted for under a consumption tax, it is only accounted for on a realization basis. There is therefore no need to measure accrued capital income. Nor is there any need to measure unincorporated business income on an accrual basis; it can be done on a cash-flow basis, thereby avoiding the thorny problem of measuring economic depreciation of physical assets. Also, since capital income is effectively untaxed, there is no need to index the tax base for

Comparisons of Tax Bases under a Comprehensive Income Tax and a Consumption Tax

Receipts	Income Tax	Consumption Tax
Wages, salaries, labour compensation	Yes	Yes
Gifts, inheritances	Yes	Yes
Interest, dividends and rental on assets adjusted for inflation	Yes	No
Accrued capital gains	Yes	No
Rental value of consumer durables	Yes	No
Withdrawals from registered accounts	No	Yes
Gross receipts from unincorporated businesses	Yes	Yes
Deductions		
Contributions to registered accounts	No	Yes
Gifts and bequests made to others	Yes	Yes
Interest on borrowed money adjusted for inflation	Yes	No
Employee and current business expenses	Yes	Yes
Capital outlay of unincorporated business	No	Yes
Depreciation allowance for assets adjusted for inflation	Yes	No

Source: J.M. Mintz. 1984. "Issues in Personal Tax Reform." Paper prepared for the Tax Reform Seminar, July 19, for the Royal Commission on the Economic Union and Development Prospects for Canada.

inflation; however, for progressive consumption taxes it will still be necessary to index the exemption level and tax brackets. Finally, imputed returns on housing and other durables need not be measured under a consumption tax, since these assets are taxes on a prepaid (non-registered) basis. Altogether, these advantages of simplification are considerable. However, there is one form of "consumption" that is as difficult to measure under the consumption tax as under the income tax, and that is the value of leisure. Proponents of the income tax argue that it may be superior in this regard. Since much discretionary leisure is taken in the form of retirement, and since a good deal of saving is done for retirement, an income tax that taxes the return to saving in effect indirectly taxes leisure taken in retirement more than does a consumption tax. The same argument applies to persons who inherit large amounts of wealth and can therefore take more leisure over their lives. Consumption tax advocates respond that this could be handled either by a system of tax credits for working or by a tax on transfers of wealth (as advocated by the Meade report). Furthermore, if future consumption and leisure are not complementary goods, the consumption tax could be superior. Other forms of imputed income and consumption pose similar difficulties, and it is not clear on balance which tax is superior on these grounds.

The efficiency case for consumption taxation is based upon the fact that, unlike the income tax, it does not impose a distortion on savings. By taxing the returns to saving, an income tax raises the "price" of future consumption relative to present consumption, and induces a reduction in future consumption.[7] Such a distortion does not exist under the consumption tax. The price of future consumption in terms of foregone present consumption to an individual consumer is the same as to society as a whole and is determined purely by the rate of return on capital, or the interest rate. The strength of the efficiency case for consumption taxation depends upon a number of considerations that are discussed below.

First, it depends upon exactly how responsive savings are to the after-tax rate of return. The more elastic are household savings, the more important will be any distortion imposed on the market for savings. Evidence in this regard is relatively sparse, especially for Canada. Recent studies in the United States have suggested that the elasticity of savings with respect to the rate of return is larger than had previously been thought.[8]

Second, it is well known from economic theory that the removal of one distortion in an economy that has a number of other distortions need not be efficiency-improving.[9] In this context, the consumption tax does not tax saving, but it does impose a tax on the supply of labour. To raise the same amount of revenue in each period, tax rates would generally have to be higher under a consumption tax than under an income tax (because the base is smaller), so the distortion on the labour supply decision will be greater. Loosely speaking, whether the consumption tax is more or less distorting than the income tax depends on whether the additional distortion imposed on the labour supply decision is less than or greater than the magnitude of the savings distortion removed. The existing evidence is not sufficient to settle that matter.

Third, there is a consideration that adds weight to the size of the savings distortion in the economy, a technical argument referred to by economists as dynamic welfare loss. If the gross rate of return on capital exceeds the rate of growth of GNP, the economy is said to be operating with too little capital in the sense that if the capital stock per capita were higher, per capita welfare would be higher in the long run. The argument is fairly technical, and it amounts to showing that all generations could be made better off in the long run by there being a larger capital stock to serve as a vehicle for the accumulation of wealth by the working generation and the decumulation by the retired.[10] There seems to be a general consensus that the rate of return on capital does exceed the rate of growth of GNP, and that there is dynamic welfare loss. Since the consumption tax serves to remove distortions on the rate of return on capital, per capita welfare could be higher if the capital stock were higher. The difficulty with this argument is that to move to a higher capital stock involves making some cohorts worse off while the capital is being accumulated. Thus, the

long-run gain is only accomplished with a short-run loss. By the same token, the existence of government debt and social security increases the dynamic welfare loss in the economy, in the former case by providing an asset substitutable for real capital to satisfy the demand for wealth by the accumulating generation, and in the latter case by reducing the demand for wealth to support retirement.

Fourth, related to this is the fact that the consumption tax can generate a greater demand for asset holdings over one's life cycle purely on account of the fact that tax payments are spread relatively later in life under a consumption tax than under an income tax. This difference in cash flow of tax receipts itself induces more savings and hence more asset accumulation.

The combination of these effects implies both that the magnitude of distortions of all sorts on capital markets may be relatively large, thus implying a high social value for additional savings, and that the responsiveness of savings to the substitution of a consumption tax for an income tax may be considerable. Simulation work taking these possibilities into account has indicated that substantial welfare gains may be had from such a move, as much as 10 percent of GNP per year.[11] Similar arguments apply to the impact of substituting a funded for an unfunded public pension scheme. Large welfare gains can be obtained by increasing aggregate capital accumulation in an economy with too little capital.[12]

Two other important issues arise in defining both the income and the consumption tax bases, the treatment of bequests and the treatment of investment in human capital. Both revolve around the definition of consumption, and both apply with equal force to consumption and income tax bases. Consider bequests and gifts. Suppose the giving of a bequest is not considered to be an act of consumption. Then, under both the comprehensive income and consumption bases, the receipt of an inheritance should be included in the tax base of the recipient, and the giving of a bequest should be deductible to the donor.[13] However, if the giving of the bequest is considered an act of consumption, under both bases it would not be deductible in the hands of the donor, but would continue to be taxed in the hands of the recipient. In other words, there would be the equivalent of an inheritance tax; this tax would be due when bequests are made under the comprehensive tax or when they are consumed under the consumption tax. The matter becomes one for normative judgment, albeit one that is tempered by the fact that a tax on inheritances may discriminate against saving.

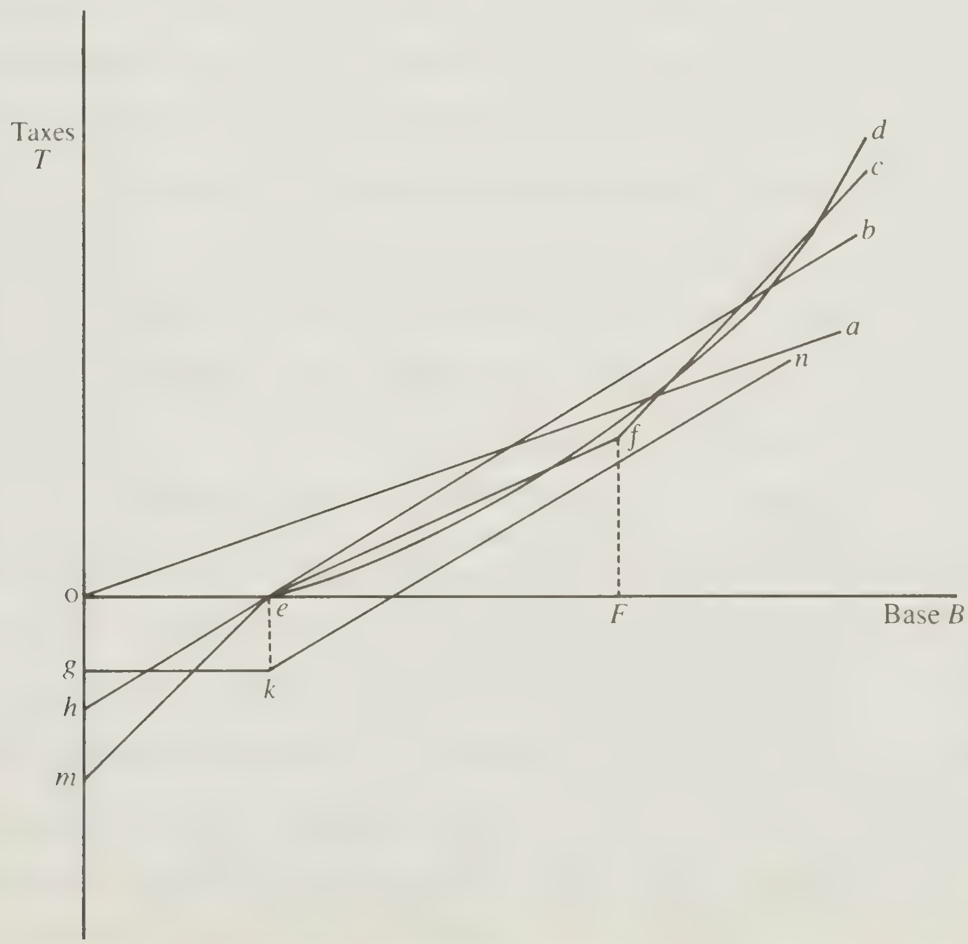
As for the costs of acquiring human capital (e.g., educational expenses, forgone earnings), if these costs are deemed to be completely of an investment nature, they ought to be fully deductible from the tax base under either system (as they, in fact, are now). However, to the extent that education or training has a consumption aspect to it, such costs should be treated as consumption expenditures and taxed accordingly. The same applies as

well to the current costs of earning income, such as clothing and transportation expenses. It is important to recognize that here, as with bequests, the choice of an income or a consumption base is independent of the treatment of these costs. The income vs. consumption choice has more to do with the treatment of capital income and savings, and the discussion here concentrates on that.

The Choice of a Rate Structure The rate structure embodies the policy maker's judgment about equity as well as about the trade-off between equity and efficiency. In discussing the rate structure, it is useful to distinguish between the exemption level for a taxpayer and the schedule of marginal tax rates, and between average and marginal tax rates. It is also important to bear in mind that the rate structure can be chosen independently of the base. That is, given either a consumption or an income base, any degree of progressivity can be obtained by appropriate choice of the rate structure.

These concepts are illustrated in Figure 4-1, which is a graph depicting taxes payable T on the vertical axis and the tax base B on the horizontal axis. The base could be income or consumption, and is defined net of all

FIGURE 4-1 **Tax Schedules under Tax Transfer Systems of Varying Progressivity**



legitimate deductions. Several different tax schedules are depicted by the lines shown. The simplest, *ao*, is a proportional flat-rate tax at the rate given by the slope of *oa*. Typically, a tax system will give an exemption to each taxpayer that may depend on the taxpayer's circumstances (e.g., number of dependants, marital status, etc.). The exemption level fulfils two functions. Following the Carter report, the exemption level may embody some notion of the minimum level of non-discretionary expenditures the taxpayer must undertake just to survive, and that may vary from taxpayer to taxpayer. Or, more realistically, it may exist mainly to add progressivity to the tax system.

Consider the rate structure *heb*. It represents what is conventionally referred to as a flat-rate tax combined with a negative income (or consumption) tax. This tax incorporates an exemption level *e* and a marginal tax rate given by the slope of *heb*. This marginal tax rate shows the tax payable on each increment of tax base, and is the same at all levels of *B*. At levels of *B* below *e*, taxes are negative or refundable, reflecting the negative income tax aspects of the structure. An important property of the tax schedule *heb* is that it is progressive in the sense that the ratio *T/B*, the average tax rate, rises as *B* rises. Roughly speaking, how the average tax rate varies with *B* determines the redistributive impact of the tax, while it is the marginal tax rate that determines the distortion or disincentive effect of the tax: the higher the marginal rate, the greater the distortion to earning additional income.

It should be noted that there are other ways of achieving the effective tax schedule *heb* other than by a refundable flat-rate income tax. For example, if taxpayers were given a demogrant (that is, a lump sum payment unrelated to their economic circumstances) of *h* and assessed a proportional tax on income not including the demogrant *B*, the same result would be obtained with exactly the same consequences for the treasury. Equivalently, if the demogrant were taxable, the amount of the demogrant would have to be $h/(1\text{-}t)$. The demogrant, whether taxable or not, could be looked upon as a refundable tax credit. The discussion that follows focusses on a negative income tax, but the reader might bear in mind these alternative equivalent mechanisms.

There are other ways of defining the rate structure above the exemption level, and two are illustrated in Figure 4-1. The schedule *efc* shows the so-called dual flat-rate tax. The marginal tax rate is given by the slope of *ef* up to the base level *F*, then rises to the slope of *fc* beyond that. Compared with the single flat-rate tax, the dual flat-rate tax has steeper progressivity. Even steeper progressivity can be obtained by increasing the number of tax brackets beyond two. In the limit, the marginal tax rate could rise continuously with *B* as shown by the schedule *ed*.

The four schedules *oa*, *eb*, *efc*, and *ed* illustrate the various trade-offs possible in adding progressivity to the tax structure, keeping in mind that one might wish to raise equivalent amounts of revenue from each. Com-

paring *oa* with *eb* indicates that increasing the exemption level *e* increases the degree of progressivity, but it must be accompanied by higher marginal rates (and hence disincentive effects) to generate equivalent revenue. Similarly, comparing *eb*, *efc* and *ed*, as more and more progressivity is introduced into the system, marginal rates will become steeper and steeper at the upper end, thus introducing more distortions. The increase in rates at the upper end can be accomplished by reduced rates in the lower end and the middle; however, since there are far more taxpayers in the middle than at the upper end, the increase in progressivity at the upper end does not generate as much of a reduction in rates in the middle.

Given the base, the case for a flat-rate tax basically involves a judgment of the trade-offs between equity and efficiency as well as a consideration of the simplifying effect. As far as simplification is concerned, the most important complexities in the existing system arise from the definition of the base rather than the application of the rate structure. There are, however, several ways in which a flat rate could simplify matters. First, with a single flat rate, there would be less need to average tax payments over several years to avoid the difficulties of unfair treatment of fluctuating incomes. To remove the averaging difficulty entirely would require that the same flat rate apply both above and below the exemption level. Second, if the flat rate chosen were comparable to the tax rate on corporations, there would be no incentive for firms to attempt to reduce their tax bill by converting corporate income into, say, wages and salaries. Third, the flat-rate tax makes indexation and integration with the corporate tax easier. Fourth, it makes the choice between credits and deductions as well as the choice of the taxpaying unit irrelevant. Finally, with lower marginal rates, it is argued that there would be less incentive to avoid taxes by underreporting income. The ability to obtain lower marginal tax rates throughout the rate structure, however, depends less on simple reform of the rate structure than on broadening the base by removing exemptions and deductions. The discussion returns to base-broadening later.

Much of the case for flat-rate taxation rests on its efficiency effects, especially on its effect on the incentive to work and to take risk. In both cases, the effects are ambiguous. Since marginal rates would rise for lower income individuals and fall for higher income individuals, the effect on work effort is not clear. Lower income groups include secondary workers who may well be more responsive to rewards than others. In addition, wives have been found to be much more wage-sensitive labour suppliers than husbands.[14] Since wives tend to be in lower income groups relative to husbands, the flat-rate tax would tend to reduce effort overall.

Similar provisos apply to risk-taking. It is well known from economic theory that taxes with loss offset provisions may actually increase rather than reduce risk-taking. The tax is effectively a means whereby the government shares in the risk. Whether or not risk-taking is reduced by a flat-rate tax depends on the relative responsiveness of high- and low-income

persons. With steeply progressive rates at the upper end, it is certainly conceivable that a non-flat-rate tax would induce much less risk. However, at this point this is an open empirical question.

On the equity side, it is clear that the flat-rate tax is less redistributive than an equal-yield tax with increasing progressivity. Most studies in Canada and the U.S. have indicated that a move from the present system to a flat-rate tax would reduce the average tax rate on higher income groups and increase it on the lower and middle-income groups.[15] Therefore, most persons, at least those who would wish to use the system to redistribute income, would regard the tax as reducing the equity of the tax system.

In evaluating the redistributive impact of various tax systems, it is useful to bear two points in mind. The first is that, as already mentioned, the rate structure can be chosen independently from the tax base. This is particularly relevant with regard to the choice between an income and a consumption tax base. It is often alleged that the substitution of a consumption tax for an income tax would be regressive since it amounts to exempting capital income, which accrues more to the high-income than to the low-income groups. There are two difficulties with this kind of statement. The first is that, if one adopts consumption or lifetime income as the appropriate measure of ability to pay for tax purposes, taxes as a proportion of consumption rather than of income should be the measure of horizontal and vertical equity. The other is that since the rate structure can be chosen independently of the base, any degree of progressivity in terms of the chosen base can be achieved.

The other relevant issue about the redistributive effects of tax systems, and one stressed by some proponents of flat-rate taxation, is that one obtains a mistaken impression about redistributive issues by concentrating on annual measures of income distribution rather than longer periods such as lifetimes.[16] A typical taxpayer's income will vary widely over his lifetime, especially as between working years and schooling or retirement. Persons with similar lifetime incomes can have very differing incomes at a given point of time simply because they are at differing points in their life cycle. Distributions of income observed for a given year will therefore include differences in income of a permanent sort as well as differences arising from fluctuations over an individual's lifetime. It has been estimated that temporary fluctuations in income account for roughly one-half of the annual income dispersion observed, while permanent differences account for the other half.[17] This implies that the redistributive impact of reducing the progressivity of the income tax would be only half of that estimated if annual income distribution statistics were used.

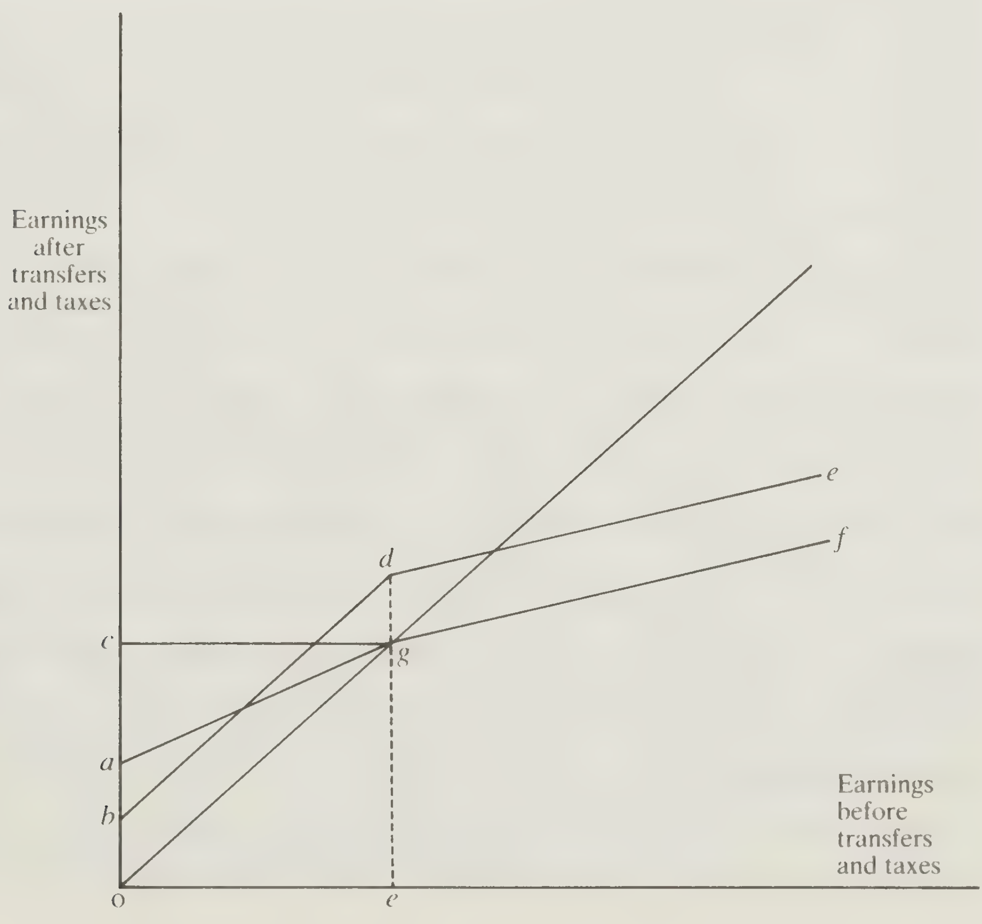
The other portion of the tax structure consists of that applying to persons below the base level *e* in Figure 4-1. These are persons who are not in a taxpaying position and for whom taxes are negative, who in other words receive transfers. There are several forms that the effective negative tax payment can take for persons with earnings below *e*. One already men-

tioned is the negative income tax form given by *he*, whereby the tax structure continues on below the exemption level (though not necessarily at the same marginal tax rate). The negative income tax is characterized by an exemption level *e* and a marginal tax rate, or equivalently by a guaranteed minimum *oh* and a marginal tax rate. For a given minimum guaranteed, the lower the marginal tax rate, the less the disincentive for recipients to supply labour will be; but the scheme will be more expensive to finance, presumably by higher taxes on those above the exemption level. Most suggestions for negative income taxes incorporate marginal tax rates of about 50 percent below the exemption level, considerably more than the marginal tax rate at incomes just above the exemption level.

Another common form that transfers can take for persons below *e* is the demogrant that is effectively untaxed and is shown in the diagram by *gkn*. Because a demogrant has no tax-back, it imposes no disincentive to work. However, it is very expensive to finance, since it applies to all persons regardless of income level.

Finally, at the opposite extreme is a scheme with an effective 100 percent tax rate, referred to as a guaranteed annual income scheme. It is shown in the diagram by the line *me*, which has a slope of 45 degrees. Under this scheme, the person obtains an after-transfer income of *om* at all

FIGURE 4-2 Pre-Tax and After-Tax Income under Various Tax-Transfer Schemes



income levels up to *e*. That is, for any additional earnings, the transfer is cut back dollar for dollar. This scheme, though the cheapest to finance, imposes a severe disincentive to work up to the income level *e* since no additional net income is received as earnings from effort increase.

The pre-tax and after-tax income under the three sorts of schemes is illustrated in Figure 4-2. In the absence of any transfers and taxes, income is given by the 45-degree line. The taxable part of income is represented by a flat-rate tax in each case. Under a negative income tax, after-tax income follows the path *agf*, where the marginal tax rate is shown to be higher below the exemption level e than above. The demogrant with its zero marginal tax rate is *bde*, and the guaranteed income scheme is *cgf*. As the marginal tax rate rises, the costs of financing the scheme fall, but the disincentive to work rises. That is the fundamental trade-off involved in transfer schemes.

Some transfers to lower-income taxpayers are not simply income-related transfers but forms of social insurance. That is, they are contingent upon some event occurring that is at least partly out of the control of the taxpayer. Two common forms of social insurance are unemployment insurance and public pensions.[18] Unemployment insurance is a transfer that is contingent on the recipient being laid off, while pensions are contingent on leaving work through retirement. It would take this discussion too far afield to consider the economic implications of social insurance schemes. However, it is worth pointing out a few of their characteristics as they relate to the tax system.

- *Unlike private insurance, social insurance schemes are mandatory* — This implies that, even though they are often financed by earmarked payroll taxes, these taxes are not analogous to user prices. The payroll taxes used are mandatory levies like any other taxes, and could be replaced by financing from any other general revenue source.
- *The payroll taxes usually used are typically of a regressive form* — That is, they are flat-rate taxes up to a maximum. On the other hand, the transfers received are progressive since they are earnings related up to a maximum. This means that the taxes approximate benefit taxes on average.
- *Because the schemes are not actuarially fair, the benefit principle is not exact* — Some groups gain relative to others. For example, in the unemployment insurance scheme, workers in industries with fluctuating employment due to seasonality or risk (e.g., fishing, construction) gain relative to workers in steady-employment industries. Secondary workers with low attachment to the labour force gain relative to permanent primary workers. With pensions, persons with higher life expectancies gain relative to others. Also, public pensions often favour families over single individuals because of spousal benefits.
- *Unemployment insurance schemes have efficiency effects* — On the plus side, they provide a form of income insurance that would presumably

be provided less fully by the private sector. The insurance is against unexpected temporary loss of employment. On the other hand, they also induce some inefficiencies in the economy, partly because they are not actuarially sound and partly because it is possible for the insured parties to influence the contingency being insured (the so-called "moral hazard" problem). Thus, the UI scheme might be expected to cause a reallocation of workers from stable to fluctuating industries. It might be expected to increase the amount of temporary layoffs that firms undertake, since premiums are unrelated to layoff experience. And, it might be expected to induce secondary workers into the labour force, since they are net beneficiaries of the scheme.

• *Public pensions also have efficiency effects* — Since public pensions provide a source of income for retirement, their existence might be expected to induce persons to save less on their own behalf for retirement. Payments into public pension schemes substitute for retirement savings. To the extent that public pensions are funded, this need not have significant aggregate implications, since contributions would find their way onto capital markets just as retirement savings would. However, if the scheme is unfunded so that current contributions are used to finance the consumption of the currently retired, the existence of public pensions might be expected to reduce society's aggregate savings and increase its consumption. If the rate of return to savings exceeds the rate of growth of GNP as is widely conceived to be the case, such a reduction in savings can have significant welfare costs to society.[19] One other efficiency effect besides the disincentive imposed on saving concerns the effect of savings on retirement. Public pension schemes that are contingent on retirement can induce workers to retire early whether from full-time or part-time work. The "price" of retirement is reduced, since not to retire implies forgoing all or part of the public pension and having to continue to pay the payroll contributions.

• *Payroll taxes themselves have efficiency effects as well as the obvious equity effects of taxing one sort of income and not another* — Since they are taxes on labour income, they provide a disincentive for work effort. In addition, to the extent that firms rather than workers bear the tax, they increase the price of labour services relative to capital services and induce firms to substitute the latter for the former.

• *Finally, public pension schemes can redistribute income between generations* — If they are unfunded, they represent an ongoing transfer from the current working generation to the preceding one. In this sense, they are similar to government debt, which is a way of obtaining current spending from future tax obligations. To the extent that redistribution of income across generations in this manner is desired, that may be a good thing. Such might be the case, for example, if living standards were continually rising over time due to productivity growth, and one wanted to share the rise with the previous generation.

The Existing System of Personal Taxation

The tax base and the rate structure underlying the existing system of personal taxation are considered below.

The Tax Base The main current personal tax is referred to as an income tax, yet the base is considerably different from comprehensive income. It is income less a large number of deductions and exemptions, many of which are on income of a capital nature. Given these, the system is probably much closer to a consumption base than to an income base. The discussion of the personal income tax base begins by recounting the various sorts of provisions in the base that in fact are consumption tax provisions.

• *Exemption of capital income* — Several items of capital income are exempt from tax. The first $1,000 of interest, dividends and taxable capital gains are non-taxable for all taxpayers. In addition, although only one-half of realized capital gains are taxed, this exemption could be viewed as offsetting taxes that are already collected at the corporate level. The imputed return on consumer durables and cash balances is tax exempt as would be the case under a consumption tax. At the same time, interest payments on the financing of tax-exempt assets are not deductible. Also, the income accruing on whole life insurance policies is not taxed. These provisions all correspond with the manner in which a consumption tax would apply on assets on which the tax is prepaid.

• *Sheltered savings* — Some savings are treated on a registered basis. They are exempt when made, but taxable when removed. These include RRSPs and RPPs. In addition, contributions to public pensions may be viewed as being treated on a registered basis, since they are deductible when made and taxable when received in retirement. These various items of saving for retirement are not treated exactly on a consumption tax basis because of various restrictions that exist on the use of the funds or on the flexibility of contributions and deductions. Contributions to RRSPs and RPPs are subject to an upper limit which, until 1984, had not changed in nominal terms for a considerable period. RPPs are locked in until retirement, and both RRSPs and RPPs must be taken in the form of an annuity and taxed whether or not they are consumed. Finally, the funds invested in these sheltered vehicles must be largely invested in Canadian assets. In addition, there is a significant incentive to hold them as debt rather than equity because, in contrast to sheltered equity income, they do not benefit from the dividend tax credit. One other form of asset accumulation that is largely treated on a consumption tax basis is human capital. To the extent that costs of education are deductible (as is true with tuition fees and forgone earnings) and the returns are taxed on a cash-flow basis in the form of wages and salaries, human capital accumulation is treated on a consumption tax basis as a registered asset.

• *Double deductions* — In some cases, deductions for capital income are overly generous in the sense that the savings are sheltered and also escape taxation on removal. Such is the case with registered home ownership savings plans (RHOSPs) where the contributions are sheltered (up to a limit), and removals remain untaxed if they are used to purchase housing. The Quebec stock purchase plan is also of this sort. Similarly, the $1,000 pension income deduction allows tax-exempt status for pension income that has already been accumulated out of sheltered savings.

Those items of capital income that do bear the tax are not treated fully on a comprehensive income basis. Except for the special case of indexed security investment plan assets, they are not indexed. Furthermore, they are often not taxed on an accrual basis but on a realization basis. This is true for the taxable portion of capital gains as well as accrued interest on Canada Savings Bonds and guaranteed investment certificates. As will be discussed in the third section, business income is not treated on an accrual basis. All in all, the tax falls far short of a comprehensive income tax and, in fact, approximates a consumption tax, though without reaping the advantages of simplicity of the latter.

Not all the exemptions and deductions in the income tax are consumption-tax-type deductions. Most exemptions exist as a way of inducing progressivity into the rate structure, as discussed below. Other deductions exist to give taxpayers an incentive to undertake certain types of activity. Most of these apply to business income and are discussed in the next section. An exception is the deduction for charitable donations which exists to induce the voluntary giving of gifts to charity, presumably for social reasons.[20] Still other deductions reflect the cost of earning income, and would be legitimate deductions under either a comprehensive income tax or a pure consumption tax.

The Rate Structure As discussed above, the rate structure is defined by an exemption level for the taxpayer and a set of marginal tax rates and brackets. In the Canadian tax system, the exemptions consist of a personal exemption available to all taxpayers, a marital exemption for those with dependent spouses, an exemption for each dependant, an old-age exemption, and a disability exemption. The purpose of these exemptions is to adjust the tax base for differences in nondiscretionary spending requirements. The level of exemptions in Canada is less than the amount of income that would be required to live at the poverty level defined by various indices.

The rate structure is then applied to income less the exemption level. marginal tax rates in 1984 rise from 6 percent on the first $1,238 of taxable income to 34 percent on incomes above $59,425. The exemption levels and the tax brackets are indexed annually to the consumer price index. The rate structure is therefore fairly progressive, applying to a tax base that approximates a consumption base net of exemptions. All provinces

except Quebec then apply a provincial tax rate to federal taxes payable; (for example, Ontario's is 48 percent). Quebec levies its own personal income tax.

The tax-transfer system maintains some progressivity below the exemption level through a variety of transfers, tax credits and social insurance payments by federal and provincial levels of government. These are summarized by category.

• *Demogrants* — As indicated above, these are lump-sum payments to particular sorts of persons independent of income level and may not be taxable. The most important of these are family allowances and old-age security, both of which are taxable. It should be noted that the taxing of family allowances works in exactly the opposite way to exemptions for dependants, so that the combined effect is independent of the household's income: that is, it is not too different from a non-taxable demogrant. An equivalent result could be obtained from a refundable dependant tax credit independent of income.

• *Negative income tax schemes* — The federal government's guaranteed income supplement for pensioners is equivalent to a negative income tax scheme with a 50 percent effective tax rate. Some provinces also supplement the incomes of pensioners by income-tested transfers.

• *Guaranteed income schemes* — The term "guaranteed income schemes" is used here to characterize those that are reduced dollar for dollar as additional income is earned. Some provincial welfare schemes funded partly by the Canada Assistance Plan (CAP) are of this sort. To quality for CAP funding, provincial welfare schemes must be based on need. This provision may be interpreted as meaning that earned income reduces the requirement for welfare on a one-to-one basis. The CAP also allows for certain in-kind as well as cash transfers.

• *Social insurance* — The main social insurance schemes are unemployment insurance and the Canada/Quebec Pension Plan, both of which are compulsory contributory schemes financed by a payroll tax with an upper limit. The benefits in each case are earnings-related. It should be noted that both the UI and C/QPP schemes are treated on a consumption tax basis under the personal tax system.

The UI scheme applies to most employed workers as well as some self-employed ones (such as fishermen). To be eligible requires a minimum number of weeks of work with a certain number of hours per week. The duration of benefits depends upon the number of weeks of contributions. As mentioned earlier, the payroll tax financing, though divided between employees and employers, is not experience-rated. The system is therefore, on average, benefit-financed (thus not systematically redistributive) but, because of its lack of experience-rating or actuarial fairness, it subsidizes temporary layoffs as a substitute for reduced hours of work or inventory accumulation,[21] subsidizes employment in unstable rather than stable output industries, and favours temporary rather than permanent workers.

The C/QPP is a partly funded public pension scheme, again financed by a payroll tax. The tax levied on each working generation goes partly to finance the benefits to the currently retired, and partly into a fund that, in turn, is loaned to the provinces. This fund is expected to run out soon after the turn of the century, at which point the system will be essentially unfunded, or "pay as you earn." The effects of such a scheme are to transfer income from each generation to the preceding one, to induce a reduction in aggregate saving, and to reduce the price of retirement from the labour force.[22]

Reform of the Personal Tax System

There are two sorts of major reform issues in personal taxation. One is the choice of a base and the other is the movement toward a flat-rate tax with its broader base and flatter rate schedule. These are discussed in turn.

Choice of a Tax Base In recent years, two major policy documents recommended moving to a consumption tax at the personal level, the U.S. Treasury's *Blueprints for Basic Tax Reform* and the Meade report in the United Kingdom. The discussion above has argued that the consumption tax could readily be administered and would, in fact, be much simpler than a comprehensive income tax. It has also argued that the existing personal income tax in Canada is quite close to a consumption tax, though without reaping the administrative advantages of it. To turn the PIT into a full-fledged consumption tax, the following changes would have to be made:

1. The limits on contributions to RRSPs, RPPs, the proposed registered pension accounts, and deferred profit sharing plans would have to be abolished. The measures proposed in the 1984 budget take the system very close to this over the long run. However, they do so in an unnecessarily complex way that taxpayers are unlikely to understand. Removal of the limits would considerably simplify compliance costs by eliminating the complicated record-keeping requirements necessary to define the annual limits. Also, negative RRSPs should be allowed for averaging purposes; a registered loan would be added to the tax base of the household while payments of interest and principle would be deductible. In addition, restrictions on the use of sheltered savings should be eliminated, and the ability to withdraw should be at will, even in retirement. Sheltered savings should be deemed withdrawn on emigration and thus be fully taxed. On death, sheltered savings passed on to heirs could remain sheltered and be fully taxable when removed or they could be deemed realized and passed on as non-registered assets.

2. Capital income on non-registered assets (dividends, interest, capital gains) should be untaxed. Interest payments on debt for whatever purpose should not be deductible. The withholding tax on capital income going

to foreigners could be retained depending on whether or not foreign countries adopted consumption taxation or not. This would naturally be subject to tax treaty negotiation.

3. Housing and other consumer durables should be treated on a non-registered or prepaid basis as under the existing system. However, RHOSPs should be abolished. Any other asset whose return is wholly or partly in an imputed form should be treated as non-registered since the returns are difficult to measure, and so should go untaxed. Such assets include money balances and insurance.

4. The costs of investing in human capital should be fully deductible on a cash-flow basis.

5. Unincorporated business income should be taxed on a cash-flow or registered basis. To treat it as unregistered would require that the "capital" income of unincorporated businesses go untaxed. If business saving were unregistered, measurement problems would arise, and taxpayers would have an incentive to make labour income appear to be capital income.

6. To the extent that a corporate tax that withholds capital income at the corporate level is maintained (see the section on business taxation), some method of integration should apply on capital income received from corporations, whether the shares were held in sheltered or unsheltered form. Currently, the only method for integration, the dividend tax credit, does not apply on sheltered assets.

While it is easy to imagine operating a consumption tax when it is in place, there are certain difficulties of transition that must be faced during the change of tax bases, as with any tax reform. At the time of transition, a stock of wealth will exist that is being held in one of three forms, sheltered wealth (RRSP, RPP, etc.), unsheltered wealth whose returns are not taxable (e.g., housing), and unsheltered wealth whose returns are taxable. The former two cases pose no difficulties, since they are already being taxed on a consumption basis. For the third category, it would be desirable to ensure that all capital income accruing up to the point of transition be fully taxed, including any accrued capital gain or accrued interest that remains to be taxed. There would have to be a "valuation day," as when capital gains taxation was introduced, at which point all of these accrued gains would have to be taxed.

The main difficulty with the transition is that there would inevitably be some gainers and some losers. Those who had accumulated wealth in a non-registered taxable form would gain the most, since future capital income on their accumulated wealth would now go untaxed. There are two steps that might be taken to alleviate this in part. First, the steepness of the rate structure might be increased to maintain the same degree of progressivity as under the existing system. (Presumably, the proportion of income in the form of capital income rises with income class.) Second, this windfall gain would be reflected in a change in the value of the wealth being held; the gain could be taxed as part of the valuation day procedure.

Those who had accumulated wealth in a registered form might lose somewhat, since the general level of tax rates might be expected to rise during the transition because of the narrower base. When savings were removed from the sheltered form, they would be at a higher tax rate than otherwise. It is not obvious that any additional steps could be taken to overcome this, or that they should be, given that the decision has been made to tax consumption rather than income.

The role of payroll taxes in financing social security is also discussed above. In the case of pensions, payroll taxes are used to finance C/QPP benefits on a partly funded basis, while general revenues are used to finance old-age security and the guaranteed income supplement, the other component of public pensions. Given that C/QPP is neither funded nor operated on actuarial principles, it is not clear that the use of payroll taxation has any particular merit as the financing device. It is not a particularly equitable tax, and it has a distorting effect on the labour demand by firms. A properly funded and actuarially fair public pension scheme could be financed by individual contributions; however, there is no particular reason why either the contributions or the benefits should be related solely to earnings from employment.

In the case of UI, the case is not so clear-cut. An ideal UI scheme might be an actuarially fair one financed by a payroll tax that is experience-rated. Because the existing system is payroll-tax financed but not experience-rated, inefficiencies are introduced in the layoff decision and in the allocation of labour across firms. To remove the payroll tax financing of UI entirely would move the system even further from actuarial fairness, and might induce an even greater misallocation of labour across industries. The inefficiencies of the existing system can only be improved by introducing some element of experience-rating into it.

Movement Toward a Flat-Rate System As mentioned, the proponents of a flat-rate tax are really advocating a package of two proposals, a broadening of the base and a flattening of the rate schedule. The base-broadening is intended to remove existing "loopholes" or tax expenditures that are distortionary and unfair to make the tax base broader and simpler to administer. The broader base will then allow tax rates to fall. The flattening of the rate structure, though predicted to reduce the redistributive effects of the tax systems, is advocated as a means of introducing incentives, especially to upper income earners, to be more productive.

The case for base-broadening is closely related to the discussion of the consumption base. Opportunities for broadening the base exist in three forms. First, there would be a reduction in the various personal exemptions that are allowed. Second, there would be an expansion of the base to include any items of income that now go untaxed, the so-called "loopholes." Third, there could be an elimination of the deductions that are offered to encourage particular forms of activities. Of these three, the

first is not part of the flat-rate agenda. Exemptions are always left in as a means of inducing progressivity into the system. The second category in fact involves mostly items of a capital-income nature such as sheltered savings, partial taxation of capital gains, imputed rents, etc. Inclusion of these items in the tax base both incurs significant administrative costs (including the need to index and to measure accrued gains), and involves moving the system heavily in the direction of a comprehensive income base. It runs counter to the trends of the postwar years that have moved the system toward a consumption base. That leaves deductions for particular types of expenditures. Many of these represent the legitimate costs of earning income (employment expenses, moving costs, tuition fees, child care expenses, capital cost allowances, and the like). There are a few remaining items that do not serve this purpose, such as charitable donations, accelerated write-offs for particular investments, research and development incentives, and resource incentives. However, the magnitude of these is not likely to be such as to represent a significant broadening of the base. As St-Hilaire and Whalley (1985) conclude, significant base-broadening is unlikely to be on the agenda.

This leaves the rate structure. The choice of a rate structure inevitably involves a normative judgment. The efficiency gains, if any, from flattening the rate schedule must be traded off against the equity costs. The decision is made even more difficult by the fact that the efficiency gains have yet to be substantiated empirically.

There is, however, a broader perspective that might be taken on this. Some studies have tended to indicate that if all taxes are taken into account, the incidence of the tax structure is not far from proportional, although recent studies have cast doubt on this result.[23] Earlier studies suggest that one way to justify a flatter income tax is to eliminate all indirect taxes and collect the same revenues through the personal tax system. The question of indirect taxes as a source of revenues is discussed again in the fourth section.

One final comment might be made concerning a flat-rate schedule. One of its advantages is that with a single flat rate there would be little need for income-averaging over time. Income-averaging is a problem under the present system because of the lack of an effective system of averaging in the income tax. However, even without a flat-rate tax, averaging need not be a problem. Under the system of consumption taxation outlined above, taxpayers can effectively self-average by varying the amounts of funds put in (or removed from) registered and non-registered assets each year. Alternatively, the central authorities could readily implement a system of general averaging on behalf of taxpayers that averaged incomes both backward and forward.

Business Taxation

Business income can accrue either to individual taxpayers directly as in the case of proprietorships and partnerships, or indirectly through corporations. In the case of unincorporated business income, taxation occurs through the personal income tax. However, if the business and individuals are separated by a corporate charter, some components of income are subject to two levels of taxation: first, at the level of the firm through the corporation income tax (CIT) and, second, at the level of the individual through the PIT when corporate earnings are taken as dividends or capital gains.

This section is primarily concerned with the CIT, its role, design and reform. Before turning to that, it is worth summarizing the appropriate means of taxing business income that accrues directly to individuals in unincorporated form. This depends on whether personal taxation takes the form of an income tax or a consumption tax. Under the ideal comprehensive income tax base, unincorporated business income would be included as it accrued. This would involve aggregating all revenues as they accrued (that is, including accounts receivable) and deducting all accrued costs (current costs, real costs of finance, true depreciation at replacement cost, replacement cost of using inventories). Some of the difficulties with implementing this base are discussed below. When a consumption base is used at the personal level, business income should be included on a realized or cash-flow basis. Revenues are included as they are received, while all costs of a current or capital nature should be fully expensed as they occur, and interest should not be deductible. As mentioned in the second section, this is equivalent to treating business investment as a registered asset. Of course, any savings made out of business income earned could be treated as registered or non-registered as the taxpayer chooses. This base is also discussed further below. As with other elements of the personal tax base, the administrative advantages of using consumption as a tax base as opposed to comprehensive income are considerable. There is no need to measure receipts and costs on an accrual basis, and consequently there is no need for inflation indexing. This advantage will become clear in the discussion of the corresponding bases for the CIT that follows.

While there are well-known arguments that define the appropriate base and rate structure for the PIT, the rationale and design options for the CIT are less well known. Because of its declining contribution to government revenues over the past three decades, some observers view reforms of the CIT as a potential source of additional revenue in the budget-balancing years ahead.[24] On the other hand, there are some economists, and numerous members of the business community, who argue that corporate income is an inappropriate base for a tax, and that the corporate income tax should be abolished with lost revenues raised through increases in existing direct personal taxes or by levying a broadly based indirect tax such as a VAT.

In fact there are several good reasons for levying taxes on business incomes through the CIT. These reasons are discussed first below, and then the benchmark CIT structures they imply are considered. These benchmark CIT structures are used to identify potential reforms. Special attention is paid to international constraints on tax reforms of the CIT. Finally, the issue of resource taxation, in particular the extent to which additional tax instruments are needed to capture resource rents, is considered.

Functions of the Corporation Income Tax

The corporation income tax may be used to perform the following functions.

Withholding at source As argued in the Carter report (1966), the U.S. Treasury *Blueprints* (1977) and Boadway, Bruce and Mintz (1982), the CIT can act as an adjunct to the PIT by taxing at the level of the firm some components of capital income that may be deferred or escape taxation altogether under the PIT. These components are:

- *Retained earnings* — To the extent that corporate income is reinvested within the firm, it accrues to the shareholders as capital gains. If capital gains are not (or cannot be) fully taxed upon accrual (i.e., as they occur, not as they are realized through sales) under the PIT, the CIT can augment the PIT as a withholding device. Also, to the extent that such capital gains accrue to foreign residents, they could escape taxation altogether under the PIT, so again the CIT performs a useful function.
- *Dividends and interest to foreign residents* — Tax treaties effectively limit the amount of tax that can be withheld against repatriated dividends and interest. The CIT allows the full taxation of such income (dividends, at least) in Canada by withholding such taxes at source. The U.S. foreign tax credit is an important factor here. This U.S. tax credit allows taxes withheld in Canada to be credited against U.S. taxes payable; as a result the Canadian CIT may not impinge upon the investment decision of the firm unless the Canadian CIT rate exceeds the U.S. rate. In effect, the foreign tax credit allows tax revenues to be transferred from the U.S. to the Canadian treasury.

Capturing economic rent Economic rent (or pure profit) is the excess value of production over economic costs measured as the return to inputs needed to keep them in a particular production process. For an input in fixed supply such as a resource stock, economic rent equals its total return. In many cases, marginal economic rents are competed away but economic rents still arise from infra-marginal production and investment decisions.

Taxing economic rents differently from other incomes is desirable because taxes on pure rent do not add any distortions in the economy.

That is, they are said to be "neutral". The allocation of resources is the same under neutral taxes as in the absence of taxes (except for an income effect). The corporation income tax is a useful device, though not necessarily the only one, for capturing economic rents because factor incomes can, at least in principle, be separated from rents in determining the tax liability. The prevalence of resource rents in Canada makes rent-gathering a rather important function.

Corrective taxation In the absence of perfect markets, taxes at the level of the firm can be used to improve the allocation of resources. One instance for which the CIT is particularly useful is risk-sharing. Because capital markets are imperfect, production risks may not be optimally pooled and shared by the private sector. Governments can correct this problem by sharing in private risk either by purchasing private equities or by profit taxation with full loss offset. Profit taxation is probably superior on political grounds, since it separates public risk-sharing from public ownership.

Provision of economic incentives Governments may wish to influence production and investment decisions in the economy. The CIT can provide broad incentives or narrow, firm or output-specific incentives.

Corporate Tax Design

In the *Tax Expenditure Account* document accompanying the November 1981 budget, the benchmark chosen for the corporate tax base is "the maximum amount distributable to owners without impairing the capital of the corporation." Essentially, this base was chosen as analogous to the comprehensive-income benchmark for the personal tax. It is difficult to see, however, why the merits of the comprehensive-income base, which may make sense for the individual or household (see the second section), should apply to the business income of a legal artifact, the corporation. For this reason, alternative benchmark CIT bases, derived with the above-mentioned functions of the CIT in mind, are considered here. These benchmarks are the following.

- *The withholding benchmark* — If the function of the CIT is isolated as that of a withholding device adjunct to the PIT, the base of the CIT should be those components of income that are not (or cannot be) fully taxed at the personal level. For various reasons, including the non-discrimination provisions of tax treaties, a broader base may be chosen. An obvious candidate would be net value-added attributable to capital — that is, accruing revenues less current costs for labour and materials less economic depreciation indexed for inflation. Then tax credits should be allowed against personal tax liabilities incurred in Canada upon the distribution of this net capital income in the form of dividends, interest and capital gains. The

CIT, designed as an ideal withholding tax, would have the same effect on economic activities (such as investment) as the PIT with which it is integrated.

• *The economic-rent or pure-profit benchmark* — To tax economic rent differentially, it is necessary to tax the revenues of the corporation less all economic costs — that is, those costs necessary to bring the inputs into the production process. There are two well-known methods of doing this, which differ primarily in how they treat capital costs.[25] The implicit-rental benchmark deducts the implicit rental cost of the firms' capital stock as the capital cost. The cash-flow (full write-off) benchmark deducts capital costs by allowing full write-off of all investment expenditures. Investment cost is equal to the present value of implicit rental costs of capital. Both benchmarks allow for current labour and material costs to be deducted as incurred. Unlike the withholding benchmark, no tax credits at the personal level are allowed against the pure-profit benchmark. Such credits would undo the differential tax on rents imposed by such a CIT.

The implicit-rental benchmark poses substantial information difficulties, particularly in an inflating economy, because various real components of capital costs must be imputed. Ideally, the implicit-rental benchmark should equal accruing revenues less accruing current costs less true, inflation-indexed economic depreciation less the real interest cost of the replacement value of the firm's capital stock and inventories. Also, goods and materials taken in and out of inventories should be treated on an inflation-indexed replacement cost basis.

In contrast, the cash-flow benchmark poses no measurement problems because capital costs equal investment expenses and inventories are costed when acquired. However, this introduces (or more correctly, magnifies) the problem of refundability.[26] Firms with major investment outlays in a given period would have negative taxable business income requiring refunds or sufficiently generous carry-over provisions. The latter possibility can be formalized into a modified cash-flow benchmark that is simple, but avoids the informational difficulties of the imputed rent benchmark and the refundability problems of the immediate write-off version of the cash-flow benchmark.[27]

Corporate financial income (intercorporate flows of interest, dividends and capital gains) should not accumulate additional tax burdens upon flowing through corporations whether the purpose of the CIT is withholding or pure profits taxation. This could be accomplished with an appropriate gross-up and tax-credit scheme.

The difference between the ideal withholding and economic-rent benchmarks should be stressed. The former allows only true depreciation and current costs to be deducted from revenues in defining the corporate tax base, but allows tax credits against personal tax liabilities in Canada on all distributions. The economic-rent benchmark allows all capital costs to be deducted in one form or another, but allows no tax credits at the

personal level. A CIT designed to capture economic rent would create an incentive for firms to avoid the corporate form in order to avoid the rent tax unless business taxation under PIT also allowed for a differential tax or economic rent. That is, the PIT must tax business income in the same way as the CIT. Some authors have viewed the withholding and economic rent-capturing functions as competing and the two resulting benchmarks as mutually exclusive. In fact, this need not be the case. Both benchmarks can be combined, albeit in a more complicated CIT benchmark.[28]

The above discussion of the withholding of the CIT was based on the premise that the personal tax structure was one of the income type where it is desirable that capital income is taxed as it accrues. If the personal tax were of the consumption type, the withholding rationale of the CIT would be considerably weakened. In such a case, the sole withholding function would be to tax capital income that is accruing to foreigners, and would be eligible for a foreign tax credit under the home country's income tax system. Recall that the personal consumption tax either exempts capital income on unregistered savings or taxes all disbursements against registered (tax-deductible) savings. Thus there is no need to use the CIT as a means of taxing undistributed capital income, at least as far as such income accrues to domestic taxpayers.

The design of the CIT under a personal consumption tax poses some unresolved problems. As in the case of a proprietorship, it would be necessary to prevent labour income from being disbursed as capital income on unregistered assets and thus escaping the tax. (Otherwise, for example, corporations could pay employee compensation as dividends on shares that the corporation gives to its employees.) Consequently, it seems that it would be necessary to treat transactions between the corporation and holders of its securities on a cash-flow (registered-asset) basis under the personal consumption tax. Tax deductions for purchasing such securities would not be extended to foreigners, however, while returns on such securities would be taxable. To tax repatriated foreign earnings, a CIT could be levied on the distributed income of the firm, with tax credits being given to the domestic recipients. If all corporate earnings were distributed, this CIT would be ideal in that the net tax base would be foreign income repatriated (and presumably would be eligible for a foreign tax credit abroad).

The main difficulty in designing a withholding-function CIT under a personal consumption tax concerns retained corporate earnings. If retained earnings were taxed under the CIT, consistency with a consumption tax base would require refundable tax credits on capital gains accruing (not just those realized) to domestic taxpayers. This would be virtually impossible to administer. Alternatively, if retained earnings were not taxed under the CIT, income could be repatriated without paying Canadian taxes if the firm sold shares to domestic taxpayers.[29]

Other functions of the CIT do not lend themselves to a natural benchmark definition of the CIT. The corrective-tax benchmark depends on the pre-existing distortions that are being corrected. However, the risk-sharing functions discussed above would be met by an economic-rent (pure-profit) benchmark with a full loss offset. As a policy instrument, the economic-rent benchmark has a major shortcoming: variations in the tax rate on economic rents have no incentive effects except on risk-taking. However, incentive effects could be introduced, if desired, by allowing various implicit subsidies such as the investment tax credit.

Reforming the Existing CIT

The following discussion reviews differences between the existing and benchmark structures of the corporation income tax and the incentive effects of the existing structure, and then considers potential reforms.

Differences Between the Existing and Benchmark Structures The existing corporation income tax, although it contains some elements of the withholding benchmark and some elements of the pure-profit benchmark, differs from the benchmark structures in numerous ways.

1. Interest income is not withheld at the level of the firm as required by the capital-income withholding benchmark.

2. The dividend tax credit to domestic shareholders is partial rather than full as required by the withholding benchmark. In some cases, the dividend tax credit is excessive (e.g., where it is permitted for non-taxable corporations (or the case of low-tax-rate small businesses prior to the 1981 budget). Also, the dividend tax credit is not permitted on sheltered savings (e.g., pension plans). Thus equity is treated less favourably than debt because interest — even that distributed to sheltered saving — is deductible from the CIT.

3. Capital cost allowances bear little or no relationship to true economic depreciation at replacement cost, which is the appropriate deduction under both the withholding and the implicit-rental, pure-profit benchmarks.

4. Inventories are costed on a historic first-in first-out basis rather than a constant-dollar FIFO basis (i.e., by adjusting inventory deductions for changes in the general price level, though not for relative price changes), as required by both the withholding and the pure-profit benchmarks.

5. Some capital costs including exploration and development costs in the resource industry and the costs of acquiring intangible assets such as research and development are over-deducted. Such costs can be deducted immediately as incurred, and then depletion allowances and interest deductions are permitted on top. This is inconsistent with both the withholding and the pure-profit benchmarks.

6. Capital gains realized by corporations on financial assets are taxed. This constitutes multiple taxation on such earnings and is inconsistent with both the withholding and the pure-profit benchmarks.

7. Nominal interest on debt is deductible rather than real interest on the replacement value of the capital stock, as required by the implicit-rental, pure-profit benchmark.

8. The loss offset is not full, as required by the pure-profit benchmark.

Incentive Effects of the Existing Structure The incentive effects of the existing tax structure relative to the withholding benchmark (for which the incentive effects are determined by the personal tax structure since the tax is fully integrated) and the pure profit benchmark (which is neutral except for risk-taking) are not unambiguous, since many of the effects work in opposite directions. Indeed many provisions, such as accelerated depreciation and inventory deductions, were introduced to offset certain biases induced by inflation.

An important and unambiguous incentive of the existing corporate tax relative to either benchmark is toward high leverage. Deductibility of nominal interest on debt combined with limited relief from the double taxation of dividends and capital gains provides a great incentive to finance using debt rather than equity. This incentive is intensified by high inflation. Also, variability in interest and inflation rates has induced firms to issue short-term debt. As a result, firms have been (and remain) extremely vulnerable to recessionary forces, with the so-called balance-sheet problem as a result.

The effect of the existing corporation income tax on the incentive to invest is ambiguous on a priori grounds. Empirically, it is ambiguous as well. In some years and for some assets, the effective marginal corporate tax rate (a parameter that summarizes the various effects of the tax structure as the difference between the gross of tax real return required on a marginally profitable investment less the after-tax real return paid out to households) is positive (indicating a disincentive to invest relative to the pure-profit benchmark or over and above the withholding benchmark), while in other cases it is negative — an incentive to invest (Boadway, Bruce and Mintz, 1984b). Despite some earlier assertions that the effective tax rates were rising due to inflation, recent research has indicated that, on average, effective marginal tax rates have shown little trend over time. This is because various ad hoc liberalizations in the tax structure, such as accelerated depreciation and the effects of nominal interest deductibility, have offset the effects of the other inflation distortions of the tax base. It has been found, however, that these effects have not been equal across all types of capital. Inventories, in particular, have been severely hit with high effective tax rates while land, and machinery and equipment in the manufacturing and processing industries have been favoured.

One incentive effect that was neutralized by the 1981 budget concerns the decision to incorporate. Prior to the budget, the special small-business tax rate encouraged small businesses, partnerships and professionals to incorporate. Since the dividend distribution tax has fully integrated the corporation income tax at this level, this incentive has been removed.

Other incentive effects of the existing corporate tax operate on the labour/capital input mix, the product mix (favouring certain industries) and the regional location of industry.

Potential Reforms of the CIT Measures that have been considered as potential reforms of the CIT include indexation, base-broadening, neutrality on the composition of the firm's assets and liabilities, and simplification, as discussed below.

- *Indexation* — This remains an important item on the reform agenda. Although ad hoc adjustments have offset the main effects of inflation on the cost of capital, such adjustments are not sensitive to the level of inflation, and have not offset the effects of inflation on the taxation of some types of capital such as inventories.

The simplest part of indexation is indexing the capital cost allowance and the FIFO cost of inventory to a general price index. The difficult part is introducing real rather than nominal interest deductibility. One huge advantage of a cash-flow or modified cash-flow base is that indexing is not required.

- *Base-broadening* — Unlike the comprehensive CIT benchmark put forward in the *Tax Expenditure Account* document, the benchmarks implied by the withholding and economic rent functions of the CIT do not suggest substantial scope for base-broadening in the CIT (except in the case of the resource industry, to be discussed below). Two concrete suggestions are limiting dividend tax credits to corporate taxes paid by the firm and eliminating the special tax rate on the first $100,000 of corporate income. Eliminating the investment tax credit, inventory deduction and accelerated depreciation are other possibilities, but these reforms should be carried out in conjunction with other changes (e.g., indexation). Broadening the CIT base to capture more foreign capital income by excluding interest deductions (but allowing tax credits to resident interest recipients) is another potential reform. However, this would be useless unless the U.S. foreign tax credit covered the increased Canadian tax liabilities, which seems unlikely.

In some cases, base-narrowing is suggested by the withholding and rent-capturing functions of the CIT. The current treatment of intercorporate capital gains and dividend flows is not consistent with either function. Capital gains taxes on corporate-held shares should be eliminated, and adjustments in the intercorporate dividend tax credit arrangements would be required. (These taxes are not needed to prevent deferral in holding companies, since the refundable Part IV tax applies in such cases.)

Integration of taxes on equity income could be improved by allowing full dividend tax credits on corporations that paid sufficient corporate taxes. In principle, the tax credit against corporate taxes paid should be extended to resident recipients of capital gains, but this might be difficult to administer.

• *Neutrality* — Indexation and further integration would remove the non-neutralities of the CIT on the composition of the firm's assets and liabilities. Elimination of tax preferences for the manufacturing/processing and resource industries would also make the CIT more neutral. However, as discussed below, neutrality of the CIT with respect to the overall investment decision may be difficult to achieve because of international considerations.

• *Simplification* — Undoubtedly, the existing CIT is far too complicated. A detailed discussion of simplification is beyond the scope of this survey, but some broad statements can be made. With the exception of the indexation initiatives, most of the reforms suggested by this function-based guide to CIT reform involve simplifications. Enormous simplification is made possible by adopting the inflation-proof, cash-flow base, although this is possible only if the CIT is a pure-profit tax. This base would also simplify the treatment of intercorporate financial flows.

International Considerations in Reform of the CIT

Certain international factors are of significance in any reform of the corporation income tax: (a) the openness of the Canadian capital market and the extent of foreign ownership in the Canadian economy and (b) the U.S. tax treatment of Canadian-source capital income and the provisions of the U.S. foreign tax credit. In particular, the openness of the capital market means that the marginal source of investment funds in Canada is foreign, and a large part of capital income generated in Canada accrues to foreigners. U.S. law and U.S.- Canada tax treaty arrangements determine U.S. tax treatment of Canadian-source capital income. The most important facts are that the United States taxes Canadian-source capital income only upon repatriation to the United States, and allows full credit for withholding and corporate taxes paid on such income in Canada to the parent U.S. firm.

As a result of the U.S. foreign tax credit, any CIT preferences offered in Canada (e.g., a lower rate) to foreign capital income transfer revenues from the Canadian government to the U.S. government. For this reason, corporate and withholding tax burdens levied in Canada are borne by the U.S. treasury providing the burdens do not exceed the taxes due in the United States.[30] However, tax treaty arrangements between the United States and Canada limit Canada's ability to transfer further revenues from

the U.S. treasury by applying withholding taxes on interest and dividends flowing to the United States.

In addition, the fact that the main marginal source of investment funds in Canada is the United States will affect any attempt by Canada to alter the marginal cost of capital through tax reforms. Under the U.S. foreign tax credit arrangements, tax reforms in Canada cannot alter the marginal cost of capital if such funds are obtained from new capital inflows; lower Canadian taxes are matched by lower U.S. foreign tax credits. But most foreign investment in Canada comes out of retained earnings by foreigners in resident corporations. Canadian tax reforms do alter the marginal cost of capital (and hence investment incentives) on such funds because the matching U.S. taxes are deferred until returns are repatriated. Moreover if, as seems likely, reinvested foreign earnings are the marginal source of investment funds in Canada, Canadian tax reforms must operate on this margin to influence the level of investment. Tax preferences available only to domestic savers (such as the dividend tax credit) only alter the composition (between foreign and domestic) and not the level of investment. However, to apply Canadian tax reforms to foreign incomes retained in resident corporations implies a transfer of revenues from Revenue Canada to the U.S. treasury. It is likely that the loss in tax revenue would exceed the gain in income arising from a more efficient allocation of resources. Thus it is doubtful that unilateral CIT reform could raise welfare by eliminating investment disincentives and increasing the level of investment in Canada.

This is not an excuse for inaction, however. Corporate tax reforms aimed at removing biases against equity in firms' financial liability structure and against certain types of capital (e.g., inventories) in firms' asset structures can be accomplished. Rationalizing the Canadian CIT in terms of its withholding and rent-capturing functions and/or simplifying the CIT by moving to a cash-flow basis are all feasible. Also, Canada could explore multilateral CIT reform with the U.S. and other tax treaty countries.

Taxation of Exhaustible Resources

Although the taxation of resource industries has been a concern for a long time in Canada, the sharp rise in resource prices during the 1970s intensified this concern. There are a number of issues that make the taxation of exhaustible resources — oil, gas, metals and other minerals — a subject by itself within the broader subject of business taxation. The main issues are (a) tax preferences historically offered to resource industries; (b) the use of resource taxation for various objectives including rent extraction, resource management and development; (c) the form of resource taxation and alternatives to taxation such as lease auctions, Crown corporations and price regulation for meeting the various objectives; and (d) federal-provincial conflict over the distribution of resource rents and

other issues in resource taxation. Each of these issues is discussed, then conclusions regarding possible resource tax reforms are drawn.

Arguments for Preferential Resource Taxation Resource industries have enjoyed favourable tax treatment in the past and, contrary to the findings of the Carter report, many believe they should continue to be favourably treated. Favourable treatment includes the immediate write-off of exploration expenses and partial write-off of development expenses against taxable income, in addition to interest expense deductibility and the remaining earned depletion allowances.[31] At the same time, a number of other provincial taxes and royalties are levied on exhaustible resource industries but not on other industries.

Arguments for maintaining the special tax preferences include the assertion that resource industries are riskier than others, the fact that resource industries are more capital intensive than others, and the conjecture that resource industries face a capital market bias because information regarding the firm's revenue prospects, crucial for getting access to capital, cannot be publicly divulged without attracting free-rider firms.

None of these arguments supports the continuation of the existing tax preferences. Evidence is mixed on the degree to which resource industries are, in fact, riskier than other industries. In any case, adequate deductions for risk costs such as those provided through the full write-off of exploration costs are sufficient to handle this problem without additional deductions (e.g., for interest expenses incurred on such exploration costs) because the government is implicitly sharing in the risk through the tax. Second, while it is likely that resource industries are more capital-intensive than others, there is no obvious reason why this should put them at a disadvantage in raising capital. Finally, while the information externality problem is a plausible one, it again leads to the conclusion that the tax system must fully allow for such extra costs (as it does through the full write-off of exploration expenses) rather than offer tax preferences. Also, externalities are present that work in the opposite direction. The common property nature of exploration (where rights are obtained by the first firm to discover the resource) leads to overexploration.

Objectives of Resource Taxation While in some cases, objectives such as resource management and development plans influence tax policy, extracting rent seems to be the important objective in the taxation of exhaustive resource industries, particularly after 1970. The desirability of taxing rents was discussed above. Resource rents are particularly attractive because of their size and because they are "unearned returns" — a natural heritage — so that heavy taxation does not violate equity notions. Also, as mentioned earlier, some rent taxes are non-distorting (neutral) and ideal in the sense that distortionary taxes (which impose secondary costs on society) can be reduced or tax increases forgone. Also, where

such rents are uncertain, a tax on rents that allows for full loss offset is a means of ''risk sharing'' through the public sector.

Taxes to capture rents have been levied in several forms. Taxes on output or the value of output (or on operating revenue such as the petroleum and gas revenue tax), export taxes, property taxes, profit and rate-of-return taxes have all been levied at one time or another.

Taxes that allow deductions for costs (such as profit taxes and rate-of-return taxes) are considered superior in principle to output/revenue taxes and property taxes. Output/revenue taxes, while administratively simple, reduce the amount of the resource extracted and discriminate against lower grade ores — the so-called ''grade cutoff'' problem. For a given tax rate, the magnitude of these inefficiencies depends largely on whether high-grade ores can be taken before low grades or low grades before high grades, or whether the two must be mined at the same time. The latter arrangement increases the inefficiencies of these taxes. Moreover, the inefficiencies increase with the tax rate. Property taxes, on the other hand, create inefficiencies by encouraging rapid depletion of the resource.

Profit taxes are ideal in principle because they do not distort economic decision making if economic costs are properly measured. However, at high rates, profit taxes may encourage rents to be distributed in forms that are deducted as costs including high managerial salaries, executive perquisites, etc. At, say, a 90 percent rate profit tax, deductible expenditures are treated as ten-cent dollars and the incentives to take payments in that form are enormous. Also, such high rates encourage tax avoidance and outright evasion. Evidence as to the magnitude of this effect has yet to be gathered, however. Such problems may be overcome by the use of rate-of-return and best-practice costs, but such a system would run into administrative costs and economic inefficiencies similar to those encountered in regulated industries.

The desirability of abolishing indirect resource taxes in favour of direct profit taxes is uncertain. It is possible that the efficiency costs of indirect taxes are low at low tax rates. Moreover, the tax base is simple to monitor. Consequently, such taxes can provide a stable source of revenues and an administratively simple resource management device for the provinces.

One tax issue of historic importance is the pre-1981 constitutional restriction on levying indirect (excise type) taxes by provinces. This essentially precluded provinces from levying output taxes except in the form of royalties on Crown-owned resources. In the Constitution Act of 1982, provinces were granted the right to levy such taxes on exhaustible resources. The new provincial powers will allow provinces to manage and collect rents from a resource in a manner that is independent of whether the resource is privately or publicly owned.

Instruments of Rent Collection Alternatives to taxes for collecting rents and managing resources include royalties, lease auctions, Crown corporations, and price regulation.

Royalties on output or revenue have been levied for some time, and will continue to be levied, particularly by the provinces. Like output taxes, they are simple to administer but provide a disincentive to extraction, particularly against high-cost resources. They are prevalent in the oil and gas sector where most resources are Crown-owned. Usually, they are fixed by long-term contract and cannot be varied easily.

Lease auctions are also widely used. In principle, lease auctions could capture 100 percent of expected resource rents. However, collusive bidding, not an implausibility in view of the concentrated nature of the resource industry, may allow rents to escape. Perhaps this could be overcome by different auctioning arrangements. Another problem is that the value of a resource is uncertain, so lease auctions only capture ex ante (or expected) and not ex post rents. It is also asserted that the large up-front costs implied by lease auctions act as a barrier to entry and encourage concentration.

Crown corporations or an equity interest held by the government are also a means of getting 100 percent of the rents, at least in principle. They involve their own set of difficulties including accountability, managerial incentives and government interference. Also, the resource rents escape taxation if the Crown corporation is formed by buying out shares in the resource firm at market prices, because such prices capitalize future rents.

In Canada, price regulation has been a means of capturing rents, especially in the oil and gas industry during the 1970s. Such pricing involves (possibly large) inefficiency costs by encouraging intensive use of energy in Canadian manufacturing. Also, to prevent exploration disincentives, distinctions have to be made between "old" and "new" resources, posing administrative difficulties.

Federal-Provincial Conflict Although the level of resource rents has declined, the question of who gets them is still important. Constitutional and regional considerations have made Canada a microcosm of the world at large, with the relatively less industrialized oil-producing areas pitted against the industrialized oil-consuming areas. Oil and gas are particularly important because rents on such resources exceed mining rents by a considerable amount. The vastly unequal distribution of resource rents in Canada places considerable stress on the system of equalization payments, and encourages rent-seeking migration.

Federal-provincial conflict over the taxation of resource industries is the supreme difficulty in rationalizing this branch of taxation. Provinces in some sense have prior claim on the resource rents, and have gone about collecting them in ways that are not necessarily the best. Federal authorities, on the other hand, have used certain instruments (e.g., the export tax on natural gas and price controls) for legal reasons rather than because they

are the best instruments. Closely related to this practice is the federal government's desire to prevent rents from flowing to U.S. residents who own a large part of the resource industry, particularly oil and gas.

While it may be possible to design better schemes for resource taxation, such schemes require cooperation rather than conflict between the provinces and the federal government. The easing of resource prices and consequently rent levels may allow some efficient cooperative taxation scheme to be put in place.

Potential Reforms of Resource Taxation Although further study is required, there is no reason to suppose that the exhaustible resource industries are in anything but a strong, mature position. This means that traditional tax preferences offered these industries can be removed at the same time that profit taxes are properly structured to allow appropriate public sector risk-sharing in investment (say, through cash-flow taxation).

On practical grounds, there does not seem to be a single ideal rent tax that can capture a large percentage (say, over 75 percent) of resource rents. A combination of lease auctions (properly structured to minimize the effects of collusive bidding) to capture ex ante (expected) rents and a cash-flow profits tax to capture some portion of ex post differences (actual less expected rents) could be effective. Federal-provincial cooperation would be needed to dismantle the existing, less efficient system of royalties and revenue taxes.

Commodity Taxation

Commodity taxes, or indirect taxes, differ fundamentally from the individual and corporation income taxes in that they are levied impersonally on transactions rather than on persons or corporate entities. A commodity tax is characterized by the type of transaction it is levied on. A distinction can be drawn between the level of transaction and the commodity being traded. A commodity tax can be collected at the manufacturing, wholesale or retail stages. In Canada, the federal government collects a tax at the manufacturing stage, while all provinces except Alberta levy a retail level tax. Commodity taxes can also be levied at several stages simultaneously. Thus, a turnover tax is a commodity tax levied at each stage; the more stages a commodity passes through in its production and distribution, the greater is the turnover tax it pays. Another form of multilevel commodity tax, the value-added tax, is also levied at every stage, but only on the value added.[32] Here, the total amount collected is independent of the number of stages the commodity passes through.

Commodity taxes can be general and apply to a wide variety of commodity types. For example, they may apply to all consumption transactions. Or, they may be specific and apply only to certain commodities with perhaps a different rate for each (e.g., cigarettes, wine, spirits). The tax

rate may be specified as a percentage of selling price at the appropriate level, the ad valorem tax. Or, it may be a per unit tax defined as so much per unit transacted. General taxes will generally be ad valorem since they apply to different commodities, while specific taxes may be defined on a per unit basis. A general tax may exempt certain types of commodities (e.g., food), and it may exempt transactions of minimal value.

An important distinction in the design of commodity taxation concerns the treatment of exports and imports. A tax that exempts exports and is levied on imports of the commodity being taxed is referred to as a destination tax. One that neither taxes imports nor excludes exports is called an origin tax. Looked at in another way, a destination tax is a tax on consumption, while an origin tax is a tax on production.

There are two important potential effects upon which the choice of destination vs. origin bases will bear. One of these concerns the incentives that the tax system carries for exports and imports. The other concerns the ability of a country to transfer tax revenues from another's treasury. Both of these effects depend upon the sort of tax base imposed by the country's trading partners. Consider trade between Canada and the United States. If both countries were to impose destination-based tax systems, the favourable treatment given to exports by Canada relative to imports would be offset by the tax system in the United States. If tax rates were the same in both countries, there would be no net incentive effect on imports or exports by either country. All goods would be taxed at the same rate when consumed regardless of where consumption took place. Similarly, if both countries imposed origin-based taxes at the same rate, there would be no net effect on trade. At the same time, Canada would prefer that an origin-based tax be used in both countries if her trade account were in surplus. Domestic production would exceed domestic consumption, so the tax base would be larger in Canada and smaller in the United States under a production tax (origin-based) than under a consumption tax (destination-based). The opposite would occur if the trade balance were in deficit.

On the other hand, it would be costly for Canada to adopt one base if the United States adopted another. For example, if the United States introduced a destination-based VAT, Canada's adoption of an origin-based tax would have two drawbacks. First, the tax would effectively discriminate against exports relative to imports. Exporters would end up bearing the brunt of the tax on their products, since they face more or less fixed world prices. Imports would bear no tax, since they are exempt in both the countries. Second, the implicit transfer of tax revenues from the United States to Canadian treasuries that would occur if both countries adopted an origin-based system and Canada had a trade surplus would be denied if the United States adopted a destination base. Taxing Canadian exports as they entered the United States would give no credit for taxes paid in Canada. In practice, Canada would be obliged to adopt the U.S. system.

The remainder of this section will elaborate on three general concerns. The discussion begins with a brief consideration of the rationale for commodity taxation as a component of the tax system alongside the other major types of taxes. Next, the major elements of the existing system of federal commodity taxes are discussed and some of the structural problems outlined. Finally, some directions for reform are considered. Much of our analysis will be in terms of the federal taxes rather than the provincial ones. This is partly because the structural problems of commodity taxation are more pronounced with the federal manufacturing-level sales taxes, and partly because most of the same principles that apply to the federal level also apply to the provinces.

The Rationale for Commodity Taxation

It is not difficult to understand why tax administrators might prefer to have commodity taxes alongside the direct taxes in the tax system. The existence of indirect taxes increases the number of revenue sources and permits a lower tax rate on each one. Taxpayer resistance may therefore be reduced. This is enhanced by the fact that commodity taxes may be hidden, or at least may be perceived to be less visible than, say, personal income taxes. Our concern, however, is more with the economic rationale for commodity taxes than with administrative convenience.

The case for general commodity taxation depends partly on what form the system of direct taxes takes, and partly on a judgment concerning the relative merits of equity, efficiency and compliance cost arguments. Supposing that the system of personal taxation is an income tax, a general commodity tax has the following advantages:

(a) A destination-based general commodity tax is like a proportional tax on consumption. Unlike an income tax, it does not distort the saving decision. The absence of a distortion on saving may be a considerable advantage, the greater the more responsive saving is to its rate of return.

(b) The ability to exempt certain types of transactions (e.g., food, clothing, shelter, and other necessities) allows a general commodity tax to be directed to vertical equity goals. It would generally be rather difficult for the income tax system to exempt explicitly these types of consumption. Instead, it uses a general set of personal exemptions that can only discriminate to a limited extent among persons.

(c) Commodity taxation can be applied on a destination basis, whereas personal taxation is applied at the origin. This means that commodity taxation treats net exports more favourably. It might be noted that, in the absence of trade, a general commodity tax is equivalent in present-value terms to a proportional payroll tax. However, the commodity tax possesses certain advantages over the wage tax. It collects its revenues later in the life-cycle relative to the wage tax, hence induces persons to save more.

It does not encourage firms to substitute capital for labour in production. And, in an open economy, the commodity tax is a tax on consumption, while a payroll tax, like a tax on income, is a tax on production.

A general commodity tax has the following disadvantages relative to an income tax. First, the levying of a general commodity tax alongside an income tax incurs additional costs of collection and administering compliance, which could be considerable. Second, commodity tax is impersonal, and this is its main disadvantage. Since it is not a personal tax, it cannot be designed to have a progressive rate structure. Any progressivity it has occurs through the exemptions of particular commodities. In that sense, it is like a linear progressive consumption tax except that the exemption is based on the composition of the household's consumption bundle rather than the composition of the household. This inability to have a progressive rate structure may not be too great a disadvantage as long as the commodity tax system is alongside a personal tax system. The latter can presumably be made as progressive as one wishes.

Overall, the case for the general commodity taxation as an adjunct to personal income taxation is ambiguous. It depends upon the weight of the above arguments. Even in the absence of compliance cost arguments, the case is ambiguous, as technical economic analysis has shown.[33]

If the personal tax were based on consumption rather than income, the case for a separate commodity tax would be weakened. The personal tax would no longer distort the saving decision, so that the advantage of the commodity tax would be lost. Nonetheless, the advantage of possessing the capability of exempting certain commodities easily would remain, and the case would not be clear-cut.

Specific excise taxes tend to be levied for somewhat different reasons. Some can be justified as rather rough devices for correcting for external or social costs resulting from the consumption of particular commodities. This would be true of taxes on alcohol and tobacco products, and less so of taxes on oil and gas. Some specific excises might be levied on luxuries as an adjunct to general commodity taxation as a means of adding progressivity to the system. Some are levied according to the benefit principle on commodities whose use leads to large public expenditures. Gasoline and automobile taxes come to mind. Finally some, once again oil and gas excises, are levied as a means for the federal government (or the non-producing provinces) to extract some resource rents from the production of the commodity.

The System of Federal Commodity Taxes and Its Defects

The federal government levies two sorts of commodity taxes — a manufacturers' sales tax (MST) and a series of specific excises. Each is considered in turn.[34]

The Manufacturers' Sales Tax The MST is levied ordinarily at a rate of 9 percent on the price at which goods are sold by a manufacturer to the purchaser.[35] For imports, the base is the value of imports inclusive of customs duty. Transactions among manufacturing firms are exempt to prevent double taxation, and intra-firm transactions are imputed at transfer prices. The MST is not fully general. Only goods passing through a manufacturer are included, so the value added by services is exempt, as are wholesale and retail value added. Exemptions are provided for certain necessities including food, fuel, footwear, clothing, and drugs. Producer goods are exempt except for building materials and equipment to prevent their double taxation. Exports are also exempt in accordance with the destination principle. In addition, the rate varies in some cases. It is 5 percent on building materials and equipment, and 12 percent on alcohol and tobacco products. There are three sorts of major difficulties with the MST.

- *Narrowness of the base* — It has been estimated that the MST applies to only up to 40 percent of total domestic consumption.[36] Therefore, the tax is far from general. Part of this represents the legitimate exemption of necessities to add progressivity to the tax system. However, part also represents the exclusion of services, wholesaling and retailing because of the stage at which the tax is levied.
- *Treatment of imports* — Imports are said to have an advantage over domestically produced goods since the base for the tax does not include onward transportation costs, marketing and distribution costs, and profits earned by importers. Also, corporate transfer prices at which many imports are valued are usually less than market prices. Domestic manufacturers, on the other hand, are taxed on their ultimate selling price inclusive of selling and transport costs.
- *Definition of the manufacturers' selling price* — A number of difficulties arise because of the ambiguity in identifying the manufacturer's selling price. When manufacturers sell to different trade levels they may do so at different prices. For this purpose, "notional" values have been defined as the tax base. Thus, when a manufacturer sells to a retailer he may do so at a higher price than if he (or his competitors) sold to a wholesaler. He may use the notional established wholesale value as his tax base. A problem also arises with private brands. Large retailers may attach their own brand name to manufactured items, and pay a lower price than smaller retailers that use the manufacturers' brand name on the same item. More generally, a manufacturing level tax creates an incentive for backward integration by retailers or an incentive for forward integration by producers because the notional value is less than the market value. Also, the tax will favour goods sold with high wholesale and retail margins relative to those with low margins since the margin escapes taxation. As a result, the "effective" tax rates paid on goods will vary considerably from good to good and even from firm to firm.

Excise Taxes and Duties Excise taxes are specific taxes levied on domestic consumption (i.e., levied on the destination principle). Some are levied at ad valorem rates (e.g., on cigars, watches, clocks, jewellery), while others are levied at per unit rates and are indexed annually to the consumer price index (e.g., on playing cards, car air conditioners, wine, tobacco products). These taxes are partly on luxuries (for reasons of equity) and partly on goods whose use gives rise to social costs.

Excise duties are domestic production taxes (origin-based taxes). They are levied in per unit terms on spirits and beer and on tobacco products, and are indexed to the consumer price index. Although imports are not taxed, they are, in fact, subject to an equivalent tariff.

The main issue that arises in connection with specific taxes concerns their role in a system of commodity taxes and their rate. While it is true that there is an economic justification for taxing luxury items specifically and for taxing alcohol and tobacco products, this may or may not have been what motivated policy makers. The inelasticity of demand for alcohol and tobacco has also made it a reliable source of revenue for the government.

Commodity Tax Reform

The discussion of commodity tax reform will concentrate on the general MST. The issues concerning specific excise taxes and duties largely concern which commodities ought to be taxed and at what rates. The economic issues involved have already been outlined.

Basically, there are three alternative steps that could be taken in response to the defects of the MST. The tax could be abolished and the revenues made up elsewhere, such as at the personal level. The existing MST could be improved. Or, the tax could be moved from the manufacturing stage to one or more other stages. These three options will be considered in turn.

Abolition of General Commodity Taxation We have already outlined the pros and cons of a system of commodity taxes alongside personal taxes and found some advantages and some disadvantages. In Canada, there are two considerations that operate against having a federal general sales tax. First, the Canadian personal tax system is not very different from a consumption tax system. This being the case, the only real advantage of a general commodity tax is its ability to exempt specific items on equity grounds. The personal tax system can do approximately the same by the set of general exemptions, and has the additional advantage of a progressive rate structure.[37]

The second consideration is that there already is a general commodity tax at the retail level in almost all the provinces. Thus, its advantages are already being obtained. To duplicate it with a federal commodity tax would appear to incur unnecessary administrative costs. One reasonable approach

might be for the federal government to vacate the commodity tax field and leave it to the provinces. In return, the federal government might take a larger share of the personal tax room. This sort of rationalization of the tax system was recommended by the Carter commission.

The abolition of the federal MST may be politically difficult to undertake. It becomes necessary, therefore, to consider ways of improving federal commodity taxation.

Improving the MST Some of the defects of the MST could be addressed by amending its operation. A series of suggested improvements was contained in the report of the Federal Sales Tax Review Committee of July 1983. They included:

- requiring importers who sell goods at the manufacturing level to pay the MST based on the value of their sales, helping to remove the bias in favour of importers;
- allowing manufacturers to use as their notional tax base their lowest selling price to independent customers at any trade level to whom at least 15 percent of sales are made;
- providing for private brands by treating merchants as manufacturers if an agency relationship exists;
- excluding marginal manufacturing that did not contribute more than 10 percent to direct purchase costs.

The measures would provide partial relief from two of the three problems outlined earlier. Some problems with the definition of the manufacturing price and the appropriate import price would still exist, and the base would still exclude services and trade margins. For that reason, the committee viewed these only as stopgap measures, and recommended moving the tax to the retail level.

Changing the Stage at Which the Tax is Levied Three alternative bases to the MST might be considered: a wholesale sales tax, a retail sales tax and a VAT. The move to a wholesale sales tax was proposed in the federal budget of 1981, but was met with severe criticism. While a wholesale tax could make the treatment of imports more comparable with domestically produced substitutes, it possesses no other great advantages over the MST that would outweigh the heavy cost of transition. One disadvantage would be that it would continue to be less than general, with services and retail margins excluded. In addition, the definition of the wholesale price would prove as administratively troublesome as that of the manufacturer's selling price. The problem of private brands would remain, as would the requirement for notional values in cases where wholesale prices were not well defined. And, retailers would have an incentive to purchase directly from manufacturers to avoid the wholesale stage. In sum, there does not seem to be any great advantage to moving from the manufacturing to the wholesale stage.

A retail-level tax, on the other hand, does avoid many of the problems of taxes levied at prior stages. The tax can be completely general, including services in its base. Imports and domestically produced goods would be treated on an equal footing and exports would automatically be exempt. There would be no need for notional tax bases to be established and artificial incentives for vertical integration would be removed. The exemption for particular commodities could be easily administered.

Given that the provinces already have a retail sales tax, there are various ways a federal tax might be implemented. The federal government could take advantage of the collection mechanisms that already exist by arranging a joint collection mechanism with the provinces, much like the tax collection agreements that already exist for personal and corporation income taxes. However, this would require the agreement of the provinces and preferably the adoption of a common retail sales tax base across the provinces as well. This might be particularly difficult to achieve, especially since Alberta currently has no retail sales tax. This leaves as an option the federal government establishing its own separate retail sales tax with the administrative machinery that that would entail. The political feasibility of such a scheme may be low.

One final alternative that has been suggested and that would accomplish much the same purpose as the retail sales tax is a value-added tax (VAT). This is a multi-stage sales tax applied on each firm to the total value of its sales less the purchase of its capital goods. The firm then obtains credit for taxes paid at earlier stages. Imports are fully taxed, and exports are given a rebate on taxes already paid. The VAT is ultimately identical with a retail-level consumption tax. It differs from the retail tax in that it involves many more taxpaying firms, thus is more costly to administer. Its benefit is that it is more difficult to evade than the retail tax, since its method of collection and crediting has a built-in self-policing mechanism.

On purely economic grounds, it is difficult to justify a VAT as an alternative to the retail sales tax. Its main attraction seems to be political feasibility. The provinces may view the substitution of a VAT for the MST to be less of an encroachment on the retail tax field, which until now they have had to themselves. This, of course, presumes some naïveté on the part of provincial policy makers. To repeat what was suggested earlier, the provinces and the economy might be better off if the commodity tax field were left completely to the provinces and if, in return, the balance of personal taxation were tipped more in favour of the federal government.

Summary of the Issues

To many, the issues surrounding the reform of the tax system seem incomprehensible. This is regrettable given the importance of the topic. It is also, in our view, unnecessary. We have attempted to outline, in a manner the

intelligent layman can understand, the main criteria that should be used by the policy maker and the public alike in evaluating changes in the tax system. Many of the piecemeal changes in the structure that have taken place over the years were aimed at short-run objectives, adopted without taking account of what the ultimate tax structure should look like. The resulting tax structure compromises the principles of a good tax system because it is too complex and fraught with special cases, distorting resource allocation. This final section summarizes the reform issues for each of the four types of taxes considered earlier.

In the case of personal taxation, the overriding issue is what should be the base, comprehensive income or consumption. Consumption taxation has simplicity in its favour since it requires no indexing of capital income and no measurement of accrued income or costs. It is seen by its supporters, who view actual consumption as indicative of ability to pay, as more equitable. Also, by treating present and future consumption alike, it encourages savings and investment. The comprehensive income tax is seen as more equitable by its proponents, who view potential consumption as indicative of ability to pay, and it may encourage the supply of labour relative to a consumption tax. It is virtually impossible to implement, since its base should include accrued capital income properly indexed.

The choice of a tax base has implications for the resolution of other issues. Base-broadening becomes less relevant under a consumption tax, since most manners of broadening the base involve eliminating exemptions for capital income. The selection of a rate structure is also affected, since both the level of tax rates and the degree of progressivity will depend on whether consumption or income is the base. For example, since a consumption tax effectively exempts capital income from its base, a more progressive rate structure would be required to attain the same pattern of tax collections by income level (since higher income groups earn proportionately more capital income).

The choice of tax base also has relevance for the arguments for and against the flat-rate tax. Flat-rate tax proposals combine base-broadening with flattening of the rate structure. If a consumption tax were used in Canada, there would be limited scope for base-broadening, and much of the appeal of the flat tax would disappear, since the opportunity for lowering the rate at the same time does not exist. This is in contrast with the United States where there are many more significant tax expenditures that could be eliminated even under consumption taxation (such as the unlimited deductibility of interest by taxpayers). On the other hand, if income is used as the base, base-broadening becomes a complex matter, since income must be properly measured if the system is to be fully equitable. The advantages of simplicity would be lost. The Canadian system of personal taxation actually comes close to being a consumption tax, though without being as simple as it could be.

In the case of the corporate tax, it does not seem to be widely recognized that the tax actually fulfils two functions. For one thing, it withholds capital income at the corporate level that could otherwise be deferred or even escape taxation at the personal level. In this context, the ability to withhold capital income from foreign asset holders is constrained by the willingness of foreign governments to grant credit for taxes withheld. In the case of interest income, such withholding is impossible at the corporate level since no credit is given. For repatriated dividends, credit is given. By the same token, corporate taxes collected for withholding purposes from domestic taxpayers should be credited through a system of integration. The other function of the corporate tax is to tax some of the pure profits or rents arising from the activities of the corporation. In principle, the corporate tax is ideally suited for this purpose, since the tax base can be defined to be equivalent to pure rents. One simple way of doing this is to use as a profit tax base the cash flow of the firm. The advantage of this base, as with the consumption tax, is that it is easy to administer and requires no indexing.

The corporate tax, as it is currently designed, fulfils neither function well. It withholds capital income imperfectly, and that which it does withhold is imperfectly integrated. For example, it gives no dividend tax credit on dividends earned in tax-sheltered pension funds, nor does it collect pure rents for firms where such rents are earned. In particular, the deductions it offers for capital costs and inventories do not correspond with the true imputed costs of holding capital and inventories.

One important instance of a rent-generating sector is the resource sector. The major taxation issue in this sector is precisely how to capture the rents. In principle, there are a number of ways of doing this, the easiest of which is to levy a cash-flow tax on the resource-producing firm. The difficulty with this system, especially at high rates of tax, is that there is an incentive for firms, especially closely held ones, to attempt to mask some of their profits as costs such as managerial salaries. This sets a limit to the extent to which rents can be captured by a cash-flow tax. It may, therefore, be preferable to combine a cash-flow tax with another method of obtaining rents, such as a system of auctioning resource leases. What is certain is that the existing system of capturing rents is very inefficient, including as it does taxes or royalties on production (which discourage extraction and discriminate against high-cost deposits) and price controls (which encourage overuse).

The final sort of taxation considered is indirect taxation, of which the major type at the federal level is the manufacturers' sales tax. There is a question as to whether a general indirect tax is useful in the first place, since a good deal of what it accomplishes can equivalently be accomplished by a personal consumption tax. The one advantage of general sales taxation is that it allows particular types of expenditures to be exempt, which is difficult to do with personal taxation. The exemption of certain types of necessities can add progressivity to the system.

Even assuming there should be a general indirect tax, there are several further issues that must be considered. The first, given that most provinces levy a general sales tax, is whether there is a need for one at the federal level as well. The federal government could vacate the sales field in return for a greater amount of personal income tax room.

The next issue, if the federal government keeps a general sales tax, is what form it should take. The existing MST suffers from a number of defects, the most serious of which is that its coverage is not very broad. It excludes services entirely. Most of the difficulties with the MST could be avoided by moving it to the retail level, and there are two ways this could be done. The most straightforward is to adopt a retail sales tax at the federal level, a suggestion that might meet with considerable opposition from the provinces. An alternative but essentially equivalent way of proceeding is to adopt a value-added tax. A VAT taxes sales at every stage of production, but gives a credit for taxes paid at prior stages. To be equivalent to a retail sales tax, the VAT would exempt sales of producer (capital) goods. This is the form that is usually advocated.

One important consideration in designing a VAT is the treatment of imports and exports. A destination-based VAT (the type used in the European Economic Community) rebates taxes paid on exports but taxes imports fully. It is like a tax on domestic consumption. An origin-based VAT neither exempts exports nor taxes imports. It is equivalent to a tax on production. Looked at slightly differently, if trading partners all adopt an origin-based VAT, the effect is equivalent to that which would be obtained if each country applied a withholding tax directly to value added and gave a tax credit to the recipients of the value added for taxes paid in another jurisdiction (similar to the existing corporate tax but more broadly based). From Canada's point of view, there are two relevant concerns. The first is that given Canada's size, it would be advisable to adopt the same base as our major trading partner, the United States. The second is that it would be preferable for Canada if the base chosen were origin rather than destination. Even though neither base would distort trading patterns, the origin base would provide more tax revenue to a trading partner that is a net exporter. Thus, any U.S. moves to substitute a destination-based VAT for the existing origin-based corporate tax would not be in Canada's interest. By the same token, any attempt by Canada to do the same thing would be ill-advised, since it might induce such a change in the United States.

Appendix
List of Participants, Seminar on Tax Reform, July 19, 1984

Robin Boadway	Queen's University	Kingston
John Bossons	University of Toronto	Toronto
Neil Bruce	Queen's University	Kingston
John Burbidge	McMaster University	Hamilton
Robert Cairns	McGill University	Montreal
Tom Courchene	University of Western Ontario	London
Sylvester Damus	Economic Council of Canada	Ottawa
James Davies	University of Western Ontario	London
Peter Howitt	University of Western Ontario	London
Glenn Jenkins	Department of Finance	Ottawa
David Laidler	University of Western Ontario	London
Nick LePan	Department of Finance	Ottawa
Jack Mintz	Queen's University	Kingston
Doug Purvis	Queen's University	Kingston
William Schworm	University of British Columbia	Vancouver
David Sewell	Economic Council of Canada	Ottawa
Wayne Thirsk	University of Waterloo	Waterloo
Dan Usher	Queen's University	Kingston
John Whalley	University of Western Ontario	London

From the Commission

Commissioners	Albert Breton
	Hon. William Hamilton
	Tom Shoyama
	Catherine Wallace
Staff	Jamie Benidickson
	Victor Clarke
	Lilla Connidis
	Robert Gale
	Craig Riddell
	John Sargent
	David C. Smith
	François Vaillancourt
	Judith Wolfe

Notes

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1. This view was expressed in the *Report* of the Royal Commission on Taxation (1966) and the U.S. Treasury's *Blueprints for Tax Reform* (1977). A detailed discussion of integration is found in McLure (1979).
2. This view of the corporate tax is expressed in Meade et al. (1978) and Boadway, Bruce and Mintz (1982).
3. Note, however, that Kaldor dissented from this and argued in favour of an expenditure tax (Kaldor, 1955).
4. See Haig (1921), Simons (1938) and the modern restatement in the Carter report. The term "taxpayer" is used loosely here since the taxpaying unit could be an individual or a family.
5. On the other hand, an equity case for income taxation can be constructed from this discrimination against future consumption. If future consumption and leisure are complementary (e.g., in retirement), taxing future consumption represents an indirect way of taxing leisure that would otherwise escape taxation, but is a form of income.
6. A further logical extension to this would be to allow the taxpayer to incur negative amounts of registered assets; that is, to borrow and add the amount borrowed to the tax base, and to reduce the tax base when the debt is paid off. This could be useful for averaging purposes.
7. Feldstein (1978) pointed out that the interest tax could reduce future consumption without affecting savings at all because saving is the value of expenditure on future consumption. The fall in price could offset the increase in quantity of future consumption. Thus, a tax on interest is distorting even if savings are inelastic with respect to interest rate changes.
8. See Boskin (1978) and Summers (1981).
9. This is the essence of the theory of second best; see Lipsey and Lancaster (1956–57).
10. See the intuitive discussion in Feldstein (1977) and in Boadway and Clark (1985).
11. This estimate is obtained from Summers (1981). The more recent simulation by Auerbach, Kotlikoff and Skinner (1983) obtains slightly smaller, but still substantial, welfare gains. These results are still very much in dispute; see the discussion in Boadway and Clark (1985).
12. The classic argument is found in Feldstein (1974, 1977). The point is discussed fully in Boadway and Clark (1985).
13. For registered assets, they are not deregistered when given, but enter the tax base on receipt. For non-registered assets, taxes have already been prepaid so they could pass from one generation to another untaxed.
14. See Hausman and Ruud (1984).
15. See, for example, Walker (1983) in Canada and Slemrod and Yitzhaki (1983) in the U.S.
16. This point is made by Walker (1983). See the useful calculations in Davies' contribution to the tax reform seminar.
17. The dispersion is measured by the Gini coefficient. This result in discussed in Davies' paper for the seminar. See also Davies, St-Hilaire and Whalley (1984).
18. Medicare is also a common form of social insurance. We are restricting our attention here to those social insurance programs financed by payroll taxes.
19. We referred to this earlier as dynamic inefficiency: see Boadway and Clark (1985).
20. The relative size of the inducement increases the higher a taxpayer's income. The use of a tax credit system could avoid this.
21. This is exacerbated by the adverse tax treatment of inventories under the corporation income tax.

22. The classic reference is Feldstein (1974).
23. See Gillespie (1976); Whalley (1984).
24. Corporate tax revenues have fallen steadily, from over 28 percent of federal revenues in 1951 to around 11 percent by 1981. They have also declined in proportion to GNP, but this decline is much less marked.
25. The two methods also differ in how they treat the revenues and current costs of the firm. The implicit-rental approach includes revenues when they accrue, while the cash-flow approach includes them when they are received or paid by the firm.
26. Under the implicit-rental approach, negative tax liabilities are possible, but under the cash-flow approach, with the immediate write-off of investment expenditures, they are likely to be large in magnitude in some years.
27. The modified cash-flow base is discussed in Boadway and Bruce (1984).
28. The combined withholding and pure profit base for the corporate tax is derived in Boadway, Bruce and Mintz (1984b).
29. The Canadian taxpayers would receive a deduction for their purchase and pay taxes on future receipts, so no net tax is collected from them. In effect, the foreign capital owner repatriates capital income as capital gains on its holdings of Canadian shares.
30. A full discussion of U.S. tax credit arrangements is found in Brean (1984).
31. Also, on the expenditure side, there are the Petroleum Incentive Program grants.
32. This is accomplished by taxing the total value of the sale at each stage, but crediting for taxes paid on purchased inputs.
33. See the discussion in Atkinson and Stiglitz (1980).
34. This discussion draws heavily on the seminar paper by Thirsk.
35. For taxed goods, this is gross of excise duties but net of excise taxes.
36. See Cnossen (1975).
37. The Meade report suggested a rather more far-reaching approach to commodity tax reform. It proposed a broad-based commodity tax alongside a personalized expenditure tax that would apply to high level consumers. It argued that this would be administratively simple.

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Reforming Taxes:
Some Problems of Implementation

FRANCE ST-HILAIRE AND JOHN WHALLEY

Introduction

The Canadian tax system, like those in other advanced industrial economies, is widely perceived to be unnecessarily complex, too large, and difficult to change. Twenty years ago, the presence of problems in the tax system was thought by some to be a relatively new discovery, and reform was perceived to be only an issue of deciding what the appropriate remedies actually were. Today the situation is quite different. Reform on any substantial scale is viewed instead as a utopian dream. The one significant effort at reform, Canada's Royal Commission on Taxation (the Carter Commission), produced a document in 1967 that was applauded worldwide but had relatively little impact on the evolution of the tax system, and the political reaction to the 1981 federal budget is read by some as an indication that special interests can veto any proposed changes.

Are the prospects for tax reform really as bleak as some would portray them? What is the process that drives tax reform? What determines when and how various issues rise to the top of the tax reform agenda? What are the items likely to figure in tax reform debate in Canada in the years ahead, and what are the pros and cons of alternative proposals? This paper takes a broad view of both the Canadian tax system and the tax reform process, tracing recent trends and surmising future directions, while emphasizing how an understanding of process is essential to an understanding of tax reform.

Tax reform is a difficult term to pin down. At first glance, it would seem to denote basic changes to the tax system, rather than the piecemeal modification that, in fact, occurs regularly through budgets and economic statements. The substance of such changes is usually thought of as being guided by a broad philosophical view as to what constitutes either an ideal

tax system or a major improvement in present practice. Tax reform is also usually taken to refer to changes in the structure of the tax system rather than changes in the level of taxes, since the revenue requirement from the expenditure side of the public sector is usually taken as a given in tax reform debate. This tends to remove the latter issue from most tax reform discussion. Tax cuts and tax reform, therefore, often appear to be quite separate issues.

In practice, however, what constitutes tax reform is not so clear-cut. Tax reform and piecemeal change are inseparable. Any comprehensive scheme for reform needs to be somehow implemented, and implementation usually occurs through a series of piecemeal changes. Tax reform defined as a major structural change to the tax system will often be accompanied by proposals to lower tax rates in order to make the package politically more appealing. On the other hand, increased revenue requirements often become the main motivation for what subsequently becomes labelled as tax reform. There are also cases, such as the proposals at various times during the 1980s, to remove indexation of rates and brackets in the personal income tax, where it is the change in the level of taxes which is the main feature of the reform.

Because of these observations, we focus our discussion of tax reform on process rather than simply on content. We see this process as involving three types of debate, whose continuous interaction shapes tax reform as we know it.

First there are the debates at the academic level, which shape the climate of opinion surrounding both the relative importance to be attached to various broad objectives of tax policy and major wide-ranging deficiencies of the tax system.

Second are the debates at a bureaucratic level, where broad objectives are translated into concrete proposals, or piecemeal tax modification proceeds in response to political pressures without reference to the wider debate on reform. Important inputs also come from tax practitioners such as lawyers and accountants who are familiar with problems in existing arrangements and can anticipate difficulties with implementing new proposals.

Third is activity at the political level, at which proposals to change the tax system must actually be enacted. Here, political factors come powerfully into play in determining whether there is active reform discussion, and whether any reform proposals coming forward from the other levels are implemented. In turn, political forces may initiate reform discussions at the other two levels.

Our view is that care must be taken to distinguish between tax reform debates at the academic level and debates on implementation of tax policy involving the bureaucratic and political levels. Typically, the interactions between the second and third levels determine which tax changes actually occur. Accepted (or even stated) broad directions for change from the

academic level and de facto modifications to the tax system often run in opposite directions.

In turn, the dominance of the second and third levels in determining directions for tax change produces a tax system that is complex and often difficult to understand. The precise outcome of any reform episode becomes somewhat unpredictable. Academic frustrations with this process can and do build, as do public frustrations with a tax system that seems needlessly complex. Thus, understanding the process as well as the ideas underlying tax reform is essential to understanding reform itself.

We illustrate these themes by reference to Canadian experience with tax reform. These include the Carter Commission reform episode, and subsequent reform events including the 1981 and 1984 federal budgets. We also discuss the long-running reform debate on the manufacturers' sales tax. To us, all of these indicate both the importance and the difficulties of understanding the tax reform process.

The Status Quo: An Overview of the Canadian Tax System

Tax reform inevitably takes as its starting point the status quo.[1] Indeed, perhaps the main dividing line between academic and bureaucratic debates on tax reform is the way in which the status quo enters.

Academic debates usually centre on ideal taxes, frequently in isolation from the tax arrangements actually in place. The details as to how new approaches to tax policy are to dovetail with existing arrangements are usually not a major consideration. Attention is not paid to all the complicating details that need to be clarified to give any proposed tax change sufficient credibility at the bureaucratic and political levels that it will be taken seriously enough to be implemented.

Bureaucratic debates, however, begin with the status quo which is the confusing set of existing arrangements that have been shown to work, after a fashion. At this level, any proposal for change has to be evaluated in the light of all the problems and compromises that have been worked out in the past and have produced the current set of arrangements. Large-scale change is, therefore, frequently viewed as impractical in debates at this level because the existing system differs substantially from the more simplified view of the world from which academic debates begin.

The status quo in Canada, as everywhere, is a set of arrangements, which, to the uninitiated, are intimidating in their complexity. The table on page 199 lists the main federal and provincial revenue sources constituting the tax system in Canada, and indicates the changes in their relative importance that have taken place between 1969 and 1981. Broadly speaking, the tax system can be broken down into six major taxes or tax groups; personal income taxes (the major redistributive tax), the corporate tax, sales and excise taxes (including both broadly based sales taxes, such as

the provincial retail sales tax, and excise taxes on gasoline, alcoholic beverages, and tobacco), the property tax (the major municipal-level tax), and social security taxes and related contributions (such as health insurance). In addition Canada, unlike most other advanced industrialized economies, also has significant resource taxes. In fact, if the implicit tax on energy producers from price controls under the National Energy Program were included along with other data from 1981 in the table, resource taxes would be larger in revenue importance than the income tax.

The relative significance of these components of the tax system varies over time and is also different relative to other countries. For instance, in contrast to the United States, Canada collects a larger fraction of revenues through indirect taxes, while the United States collects a larger fraction through the social security tax. Canada has a broadly based federal indirect tax (the manufacturers' sales tax) while the United States does not. In turn, Canada funds the major part of our income support to the elderly from general revenues (the tax support for the old age security system); in the United States, income security for the elderly is almost exclusively funded through social security.

Differences become more extreme when comparing Canada to countries outside North America. France, for instance, collects only around 10 percent of revenues through the income tax, but around 30 percent through the value-added tax and 40 percent through social security taxes. On the other hand, Australia and New Zealand each collect around 70 percent of revenue through the income tax.

Differences over time not only reflect the relative significance of these taxes, but also the importance of the various levels of government. In Canada, as elsewhere, the corporate tax has become less important as a source of revenue, especially over the last 20 years, while the income tax has been increasing in importance. However, the pronounced growth in provincial relative to federal government activity has meant an increase in importance for provincial revenue sources, particularly sales taxes, although even this is complicated by the changes in other financial arrangements between the levels of government involving tax points, cost-shared programs, established programs financing (EPF), and equalization.

Why is there such a large array of taxes to fund the operations of government? The simple answer is that the various elements in the tax system reflect not only the different objectives taxes serve but also the historical evolution of the tax system through time. By and large, our indirect taxes have the deepest historical roots and have traditionally been seen as yielding a secure source of revenue for both federal and provincial governments, even though there is no clear equity or efficiency rationale for these taxes. In contrast, the income tax is usually cited as the major redistributive component in the tax system, the property tax as a secure revenue source for municipalities, social security taxes as benefit-related taxes that finance a system of transfers to the elderly and the unemployed, and the corporate

Composition of Government Revenues by Level of Government, 1969 and 1981 (millions of dollars)

Source of Revenue	Federal Level				Provincial Level				Local Level			
	1969		1981		1969		1981		1969		1981	
	$	% of Tax Revenue[a]	$	% of Tax Revenue	$	% of Tax Revenue	$	% of Tax Revenue	$	% of Tax Revenue	$	% of Tax Revenue
Personal income tax	5,415	39.6	22,976	37.9	2,049	25.9	16,256	36.7				
Succession duties	104	0.8	1	-	137	1.7	55	0.1				
Social security taxes	1,722	12.6	9,246	15.2	628	7.9	3,868	8.7				
Corporate income tax	2,402	17.5	8,554	14.1	751	9.5	3,372	7.6				
Property tax					44	0.6	149	0.3	3,055	88.3	10,250	82.4
Sales and excise taxes	4,007	29.3	6,965	11.5	2,270[c]	35.1	10,149[c]	22.9	5	0.1	12	-
Oil and gas taxes	6	-	7,762[b]	12.8								
Other resource taxes					484[d]	6.1	6,321[d]	14.3				
Miscellaneous taxes	21	0.2	5,157	8.5	1,038	13.1	4,186	9.4	402	11.5	2,180	17.5
Total tax revenue	13,667		60,661		7,901		44,356		3,462		12,442	
As percentage of receipts	90.4		87.9		56.6		57.9		55.7		47.4	
As percentage of GNP	17.1		15.1		9.6		11.1		4.3		3.1	

Source: Constructed from data published in the National Income and Expenditure Accounts, 1968–82.

a. Tax items as a percentage of total tax collections by level of government.
b. Oil and gas taxes at the federal level in 1981 include:
   — petroleum and gas revenue tax (PRGT): $1,031 million
   — Canadian ownership charge: $630 million
   — petroleum compensation charge: $4,265 million
   — natural gas and gas liquids tax: $845 million
   — royalties: $16 million.
   In the National Accounts, PRGT appears as part of the corporate income tax; royalties are treated as investment income; and other taxes are consolidated with other indirect taxes.
c. Sales and excise taxes at the provincial level include specific taxes on gasoline, liquor, and tobacco.
d. Resource taxes consist mainly of royalties received by the provincial governments plus miscellaneous taxes on natural resources, including taxes on mining and logging profits.

tax as necessary given the way the income tax is designed. To propose replacing these taxes by one tax or a smaller number of taxes is therefore usually viewed as too simplistic an approach to be credible. Complexity, a dominant feature of the status quo, is therefore widely accepted as an inevitable part of the tax system.

The Tax Reform Process

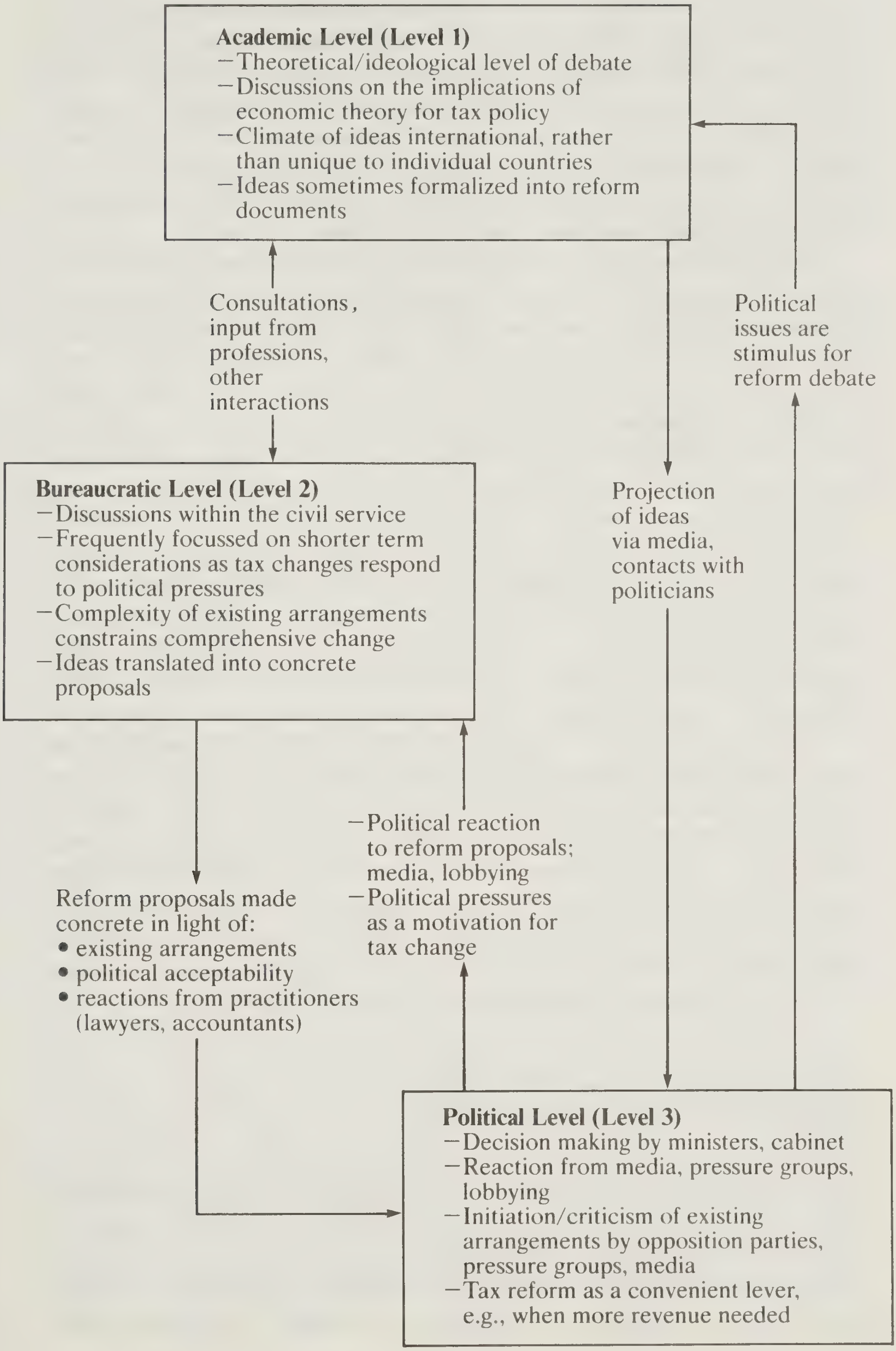
As suggested earlier, tax reform is difficult to separate from piecemeal change. Indeed, Bird (1970) argues that piecemeal change is an inevitable and even desirable way for tax systems to evolve: inevitable because of the limited resources available, and desirable because the political pressures and compromises that guide its evolution must and should inevitably remain the master of even the most comprehensive and thorough review process.

Since tax reform begins with an initially complicated tax system, reform proposals usually take one of two forms. One involves the elimination of existing taxes and their replacement by new taxes, such as replacing the corporate tax by a value-added tax, or the property tax by a municipal sales or income tax. The other is to accept the existence of the major taxes in the system but to seek to change them. Proposals to broaden the income tax base by eliminating various reductions and exclusions, or to change the valuation basis in the property tax for residential and non-residential property, are examples of this latter approach.

We see tax reform as an ongoing process of debate, taking place simultaneously on a number of different levels. This process is outlined in the figure below. Level 1 represents the debate of ideas in academic circles, the shaping of the climate of opinion which, in a broad way, determines which directions for change are viewed as desirable in theory. International in scope, this level also involves the production of tax reform documents; discrete events marked by such pieces as the Carter Commission *Report* (1967), the U.S. Department of the Treasury *Blueprints* document (1977), or the Institute for Fiscal Studies Meade Committee report (1978) in the United Kingdom. These either lay out new directions for tax reform based on certain philosophical principles or work through already accepted ideas more fully and give them added weight in the subsequent reform process. They have their impacts simultaneously in several countries because the issues discussed are usually common to all.

Level 2 represents the bureaucratic level, where attempts may or may not be made to implement specific tax reform proposals. The details of existing tax arrangements are crucial components of the debate at this level, where, to have credibility, proponents of change must propose ideas that can be meshed into the existing (and functioning) tax system. Proposals made at this level are concrete, detailed, and usually extensively discussed before they go forward for ministerial consideration. Perceived political

Levels of Debate in the Tax Reform Process



reactions also enter, as do inputs from seasoned tax practitioners. The community of tax lawyers and accountants, in particular, plays an important role in anticipating and raising administrative and implementation issues with proposals emanating from the first level. In the shorter term, attempts at comprehensive change usually either fail entirely at this level, or produce changes that are quite different from the original proposals, as happened with the Carter Commission. Debate at this level is also preoccupied with piecemeal change in response to the political pressures that also drive tax policy between major reform episodes. Changes proposed at this level always, de facto, define tax reform in practice.

Level 3 encompasses the whole of the political debate. This level of debate both generates pressures for change, and provides reaction to proposals for change. Influential small group lobbying, typically from industry or trade associations, is important, especially at the level of fine detail of tax law, which can be crucial to a small number of economic actors but relatively unimportant to everyone else. Constitutionally, of course, parliament remains sovereign in this process, but the media and, through them, wider public reaction to perceived tax problems also play major roles in shaping tax change.

These levels of debate interact with one another, although probably not as extensively as is often thought. At each level, proponents largely debate with other participants on the same level. Relatively few academics, for instance, successfully communicate their ideas to the bureaucratic level and hence influence tax change. Few at the bureaucratic level interact with participants from the academic level. Debate at the political level tends to centre on the political implications of the changes proposed as seen by the participants at this level. Also, the interactions that do occur are concentrated on neighbouring levels, level 1 to level 2 rather than level 3, and level 3 to level 2 rather than level 1. This makes the bureaucratic level crucially important since it tends to operate as a filter both for ideas from the academic level and for political reaction. On the one hand, it has the task of formalizing broad ideas into concrete reform proposals. On the other, it is charged with finding satisfactory compromises consistent with existing tax arrangements in response to political pressures.

Objectives of Tax Reform and Debates on the Academic Level

Broadly speaking, three major objectives of tax policy can be identified as key themes whose perceived importance often motivates specific tax reform proposals. These are economic efficiency, distribution, and simlicity. Economic efficiency reflects the concern of academic economists to always achieve the best allocation of resources possible given the exisence of scarcity. An efficient allocation of resources is a situation where

it is not possible to increase the output of one commodity without reducing the output of another.

The need for governments to raise revenues and the dictates of economic efficiency are usually viewed as running counter to one another, since revenue raising inevitably has disincentive effects associated with it. The income tax acts as a disincentive to labour supply and reduces the amount of work effort. Taxing investment income accruing to savers is a disincentive to save. Having the imputed income to home ownership accrue tax free gives an artificial incentive to invest in housing rather than in other kinds of property. Differential, and less onerous, application of taxes to capital gains, compared with other forms of asset returns, gives incentives to individuals to try and achieve income returns in this form. Whatever form is chosen for the tax system, efficiency effects will occur. The objective of economic efficiency in tax reform is to minimize the social costs of the various distortions that the tax system introduces.

Not surprisingly, there are (often heated) disagreements among academic economists as to the relative importance of the different efficiency effects induced by the tax system. In the 1950s and 1960s (partly influenced by Harberger's work, 1964), it was believed that the social costs of the inefficiencies due to taxes were relatively small, perhaps in the region of .75 to 1 percent of GNP per year. Recent literature (such as Browning, 1978; Stuart, 1984; Ballard, Shoven, and Whalley, 1982, 1985, however, substantially increases these estimates.

Current estimates for the United States suggest that the combined costs of the tax system as a result of tax-induced misallocations of resources run as large as 8 to 10 percent of GNP per year. Other recent literature has attached great significance to the incremental social costs of the added distortions that come from higher taxes associated with raising additional revenue to fund increases in government expenditures. In the United States, estimates in the range of 30 to 50 cents of additional social cost per extra dollar of revenues collected are now widely cited (Stuart, 1984; Ballard, Shoven and Whalley, 1982, 1985). This more recent work has changed perceptions relative to 20 years ago and clearly elevated efficiency in importance as an objective of tax policy in recent reform debates.

A second objective debated at the academic level is distribution: a concern to allocate the burden of taxes among households (or individuals) in as fair a manner as possible. Distribution, in turn, is linked to the concept of equity. Much of the tax reform debate in the 1950s and 1960s focussed on the distinction between horizontal and vertical equity. Horizontal equity dictates that equals should be treated equally, whereas vertical equity involves a judgment among different groups of equals. In more modern reform discussion, distribution is stated as the concern that the tax system be designed in such a way that the allocation of tax burdens is fair, and accords with some notion of social justice.

Over the years, the influence of distributional concerns on tax reform has been large. Until relatively recently, the tax system was widely viewed by academic economists as having little impact on the distribution of income, and, as a result, tax reformers often argued for more redistribution in the tax system (see the work on Canada by Gillespie, 1980, and on the United States by Pechman and Okner, 1974). While the income tax has traditionally been seen as progressive, the view is that it is not as progressive in practice as it appeared on paper. In turn, the progression in the income tax has, in the past, been seen as offset by regression in other taxes, such as the sales and excise taxes. In more recent years, however, this view has been challenged, particularly by Browning and Johnson (1979), who argue that the tax system might be significantly redistributive.

Currently, there are conflicting claims as to whether the redistributive impact of our tax system is progressive or regressive, and also much more ambiguity exists now than before as to what the appropriate basis for judging redistribution should be (see Whalley, 1984). For instance, should this basis be the annual income of households or the amount of income that they receive over a longer period, such as a lifetime (see Davies, St-Hilaire, and Whalley, 1984)? Is the appropriate basis even income (the amount that individuals contribute to the economic system)? Should it perhaps be consumption (the amount that individuals take out of the economic system)?

All these issues substantially affect the perception of both what the tax system actually does in terms of redistribution and what it should do. While it seems fair to say that redistribution was a dominant driving force in tax reform in the 1950s and 1960s, it seems to have been given less weight from the middle 1970s on,[2] although, with recent debates on minimum tax in Canada, this focus of debate may be undergoing further change.

A third objective discussed at the academic level, although less so than efficiency and distribution, is simplicity. Where tax reform is concerned, it is argued that any changes in the tax system should simplify the structure of the tax system and not make it more complex. The current system is widely viewed as incomprehensible to all but a small group of tax lawyers. Complexity is seen as undermining general confidence in the fairness of the tax system, fuelling the growth in the underground economy, and reducing compliance. This theme is central to the flat-tax proposals, such as the Hall-Rabushka Plan (Hall-Rabushka, 1983), which have recently appeared in the United States, and which advocate a flat tax not only to lower the disincentive effects of taxes, but also to substantially simplify the present U.S. tax system. Advocates of this approach have gone so far as to argue that it should ultimately be possible under a simplified tax code for all taxpayers to file their tax return simply by filling out a postcard.

How Do Concrete Reform Proposals Emerge?

What are the underlying forces that determine which are the more dominant of these concerns at any given time, and how are these translated into concrete reform proposals? How does the agenda for tax reform get translated into actual proposals for tax change?

Clearly, the international climate of ideas as to what taxes are doing to economies such as Canada's largely determines how the three objectives of tax reform listed above are weighed. However, in translating these objectives into concrete proposals, other important elements come into play. One is the pressure for tax replication, through which countries seem to be driven by a variety of factors to contemplate experimenting with taxes that have previously been adopted abroad in the hope of improving their own tax system.

The classic case of this arises with the value-added tax (VAT). France first introduced a consumption-type VAT in 1954.[3] The tax was to replace a gross, product-type turnover tax, which was believed to overtax investment outlays. The consumption-type VAT was also seen as desirable because of its neutrality in the treatment of capital and labour (Sullivan, 1965).

Following the adoption of a recommendation of the *Report* of the Fiscal and Financial Committee of the European Economic Commission in 1967, a dozen European countries adopted or made plans to adopt a VAT. The main objective was to achieve harmonization of the systems of indirect taxation among European common market countries. Distinctively European issues motivated this choice. The existing systems of indirect taxes in many of the European countries were turnover or cascade taxes. All of these had large elements of tax compounding, with implicit discrimination among products and methods of production, and made tax adjustments at the border between countries imprecise. The VAT was viewed as a solution on all these fronts and it offered a self-enforcement advantage because of the way it is administered (McLure and Ture, 1972).

However, with the Europeans adopting the VAT and the existence of border tax adjustment, many Americans became concerned that, because of U.S. use of the corporation income tax without border tax adjustments, Europeans had obtained an international trade advantage from the VAT. The view was that this situation was disadvantageous to the U.S. balance of payments and that this could be remedied by replacing part of the corporation income tax with a VAT (McLure & Ture, 1972). This argument, along with the seemingly wide appeal of this form of taxation in Europe, has created continuing great interest in the United States (see Aaron, 1981).

Many now believe that the outcome of the deliberations on tax reform currently under way in the United States will be eventually to produce a VAT. This is partly because the need for revenue in the United States

is so large, given the current size of the deficit (Aaron, 1981), and partly because a tax with a new name may be more politically acceptable than an increase in rates of existing taxes.[4] There is also the added weight of the trade advantage argument. If the VAT is adopted in the United States, the probability of such a tax being eventually introduced in Canada becomes correspondingly larger.

A similar train of events occurred with the spread of the corporate tax and capital gains tax to Europe and elsewhere after its initial adoption in the United States earlier this century. International integration factors therefore generate pressures for countries to replicate a new tax that has been introduced elsewhere in the name of tax reform.

Another important factor in generating concrete reform proposals is the heritage of previous reform episodes. Because of the ways in which the second and third levels of debate are brought into play in the reform process, changes when introduced are often either incomplete or inappropriate given the objectives stated for them. Such poorly executed reform provides material for further reform in the future.

An example of this occurred with the introduction of the capital gains tax in Canada in 1971. The capital gains tax was meant to respond to the needs stated by the Carter Commission to broaden the tax base and move toward taxation based on a more comprehensive definition of income. A tax on a comprehensive measure of income would tax all capital gains, on an accrual basis[5] (i.e., as asset prices rise rather than when assets are sold). Instead the capital gains tax, as introduced, taxed only one-half of capital gains, on a realization basis, and with no adjustment for inflation.

This simultaneously built in a tax preference in favour of capital gains in low inflation years, which encouraged tax manipulation in one direction, but also introduced a tax disadvantage against capital gains in high inflation years, encouraging tax manipulation in the other direction. Responding to these concerns some ten years later, a federal government white paper, and subsequently the Lortie Committee, recommended the introduction of indexed share investment plans (ISIPs), as a way of partially offsetting the negative effects of the existing capital gains tax system. However, this was still done in a way that did not fully correspond to a more ideal concept of income, such as that implicit in the Carter Commission approach of base-broadening. Instead of moving to full taxation on an accrual basis, the one-half taxation basis remains but with a three-year sliding average accrual calculation. This in turn has created its own incentives for tax manipulation, and presumably pressures for future change.

Many other such examples abound, particularly in the corporate and the gift and estate tax areas. In 1971, for instance, federal gift and estate taxes were abolished when the capital gains tax was introduced. The argument made at the time was that, because the capital gains tax would involve deemed realization at death, a pernicious form of double taxation would occur unless the federal gift and estate taxes were abolished (see Bucovetsky

and Bird,1972). In addition, it was argued that provincial governments would be able to occupy this newly vacated tax field (see Boadway and Kitchen, 1980).

The first argument in support of this change is clearly incorrect. The capital gains tax treatment at death is a more generous treatment for the donor than taxation on an accrual basis. The gift and estate taxes were present because of the absence of inheritances in the income tax base of recipients. Estate taxes should be based on the value of the estate net of capital gains taxes. There is no argument for abolishing these taxes on this ground.

Moreover, rather than provincial governments' occupying this now unoccupied tax field, the opposite has happened. Competition among provinces in this area has removed remaining gift and estate taxes.[6] Also, since the capital gains tax applied only to increases in asset values after the end of 1971, in the middle 1970s most intergenerational transfers went untaxed. The net result is that Canada is almost unique among industrialized countries in having no estate tax (see Davies, 1982).

A final and often neglected factor in determining tax reform proposals is the need for additional revenue. While there has been discussion in Canada of possibly replacing the existing manufacturers' sales tax by a value-added tax, largely prompted by the inadequacies of the existing tax, the attractions of the value-added tax with a broadened base to a government in search of revenue to reduce the deficit should not be underestimated. Much of the debate on de-indexing the income tax system in the 1980s, while ostensibly presented as part of an anti-inflation policy, was driven largely by concerns over the significant revenue loss (see Gillespie, 1983a) from an indexed rather than an unindexed tax system in high inflation periods. If a value-added tax is introduced in the United States, there as here, the main factor will be the pressure for additional revenue (Aaron, 1981).

Debates at the Bureaucratic and Political Levels

The ways in which the bureaucratic and political levels come into play in the tax reform process are many and, much like the tax system itself, unendingly complex.[8] The political level can initiate reform debates, as has happened recently with the call for a minimum income tax; it can contort and distort change so as to make it unrecognizable even to its original advocates, as happened in many instances in the period after the Carter Commission; or it can veto and prevent change, as has been true for many years with the manufacturers' sales tax.

In turn, the bureaucratic level plays a role of filtering ideas emanating from the other levels, rejecting some but making others concrete and implementable. It also implicitly responds to public reactions manifest in both

shorter- and longer-term pressures for tax change, even though such pressures often do not reflect the broader objectives of tax reform discussed earlier.

Because of the intricacies of this process, we have chosen to illustrate the interplay of these elements by reference to four specific tax reform episodes or experiences: the Carter Commission and the events which followed, the 1981 and 1984 federal budgets, and the repeated efforts over many years to modify the manufacturers' sales tax.

The Carter Commission

The 1962 appointment of the Carter Royal Commission on Taxation[7] marked the beginning of a tax reform episode that culminated in 1971 with Bill C-259, the actual tax reform legislation, but whose effects are still being felt in the evolution of our tax system.

The *Report* of the Commission in 1967 was received with interest and praise by scholars, both in Canada and internationally (see Harberger, 1968), but with great concern by the public at large, which viewed the Commission's proposals as revolutionary. The main objectives cited for their proposals were equity and efficiency. The precept was that the personal income tax was the only "fair" tax and that as such it should become the main element of the federal tax system. The corporate income tax should be fully integrated, and the use of indirect taxation kept to an absolute minimum if not totally abandoned. The major recommendations were the following:

- to broaden the tax base to include virtually all additions to wealth, e.g., bequests, realized capital gains (with deemed realization at death or on giving up residence);
- for families to be considered as single tax units with a rate schedule different from unattached individuals;
- to have a progressive rate structure with a maximum marginal rate of 50 percent on annual earnings over $100,000 to replace personal exemptions by zero rate brackets and to use tax credits instead of dependants' allowances;
- to allow continuous five-year block averaging in the income tax (subject to the condition that the income of the lowest year be less than 75 percent of that of the highest year) and forward averaging by tax deferral on cash invested in special non-interest-bearing acounts;
- to allow 3 percent of employment income (to a maximum of $500) as a deduction for employment expenses, and a child care tax credit of $80 or $200 (depending on the child's age) for working wives;
- to integrate personal and corporate income taxes[9] so that corporate earnings are taxed at individual shareholder rates (under this scheme the tax on realized capital gains would not be applicable to previously

taxed retained earnings; the corporate tax, which would be levied at a uniform rate of 50 percent, was to be credited against personal income taxes on income including grossed up dividends and allocated corporate profits);
- to reduce substantially the preferential tax treatment of earnings from mineral extraction; and
- to replace the manufacturers' sales tax with a retail sales tax, preferably administered by the provinces.

The initial response to the *Report* through briefs presented to the minister of finance was, in general, negative. Under pressure from the extractive industries, and supported by a number of provincial premiers, the federal government conceded that it was unlikely that Canada would adopt a tax treatment of this industry that would be very different from that in the United States.

The next steps of the government were, however, to attempt to implement some of the proposals, while rejecting others outright. They proposed to reform the estate and gift taxes, which would be integrated into a cumulative progressive tax, and in which interspousal transfers would be exempt. There was also a proposal to tax income of life insurance companies as other corporations and to tax personal savings accumulated in life insurance policies.

The government finally stated its full position on tax reform in the 1969 white paper ''Proposals for Tax Reform'' which in turn invited further debate and reaction. By this time, the idea of including gifts and bequests in income had been abandoned, along with the main thrust of the family tax unit proposals. The reform of the manufacturers' sales tax was postponed indefinitely.

The white paper proposals differed from Carter's in that unemployment insurance, scholarships, and research grants would be included in the income tax base, while family allowances, strike pay, and workmen's compensation would remain untaxed. Realized capital gains would be brought into income and taxed at ordinary rates, but deemed realization would accompany gifts or giving up Canadian residence, with no deemed realization at death. Share gains on closely held corporate holdings would be fully taxable, but only one-half of capital gains on shares of widely held corporations would be taxable. It was also proposed that these shareholders be required to revalue their shares to market value every five years, and to include accrued gains in current income. In its approach to integrating the personal and corporate income tax, the white paper distinguished between closely held corporations, whose tax treatment would essentially follow the Carter model, and widely held corporations, for which there would be only half integration.

The white paper was in effect a means of obtaining comment at the public level before the government made its final tax reform proposals.

Hearings were conducted by the House of Commons standing committee on finance, trade and economic affairs and by the Senate Standing Committee on banking, trade and commerce. The majority of submissions came from business firms or trade association groups, which objected, in particular, to the proposals for integration of the corporate and personal income taxes, the single rate of tax for all corporations, the proposed treatment of extractive industries, and the five-year re-valuation of widely traded shares. Opposition was also voiced by the provincial governments, the financial press, and, through letters of protest, the general public.

The government finally passed its tax reform bill in June 1971, with several noteworthy features:

- The personal income tax base was to be broadened to include unemployment insurance benefits (contributions were deductible) and scholarships (with an annual exemption of $500). Half of realized capital gains were to be reported as income and taxed at applicable rates; half of realized capital losses could be offset against taxable gains; $1,000 excess allowable loss could be deducted against other income. Deemed realization of accrued gains was to occur on death, gift, or giving up residence. Capital gains could be deferred on gifts and bequests passing to a spouse. Capital gains realized on a principal residence and up to one acre of surrounding land would not be taxable.
- A tax rate structure was to be introduced with a 22.1 percent combined lowest rate (to be reduced to 7.8 percent by 1976) rising to the 50 percent level at $24,000 of taxable income; personal exemptions proposed were higher than under the white paper. The dependants deduction was to remain.
- General averaging was to be extended to all taxpayers. Two methods were to be used: "general averaging," when the base was 120 percent of average income over the preceding four years or 110 percent of income in the preceding year; and "forward averaging" to spread taxes on large receipts of certain types of income over future years by purchasing a lump sum income-averaging annuity (whose purchase price would be excluded from income).
- As in the white paper, the reform bill allowed for a deduction of 30 percent of gross employment income up to a maximum of $150. The child care deduction was introduced as proposed in the white paper.
- The reform bill also proposed that dividends received by individuals from taxable Canadian corporations be grossed up by 1/3, and be eligible for a federal income tax credit of 4/5 of the gross-up. The general corporation rate was to be 50 percent while retaining a split rate, with a lower rate of 25 percent applying to the first $50,000 of active business income.

- Limits on contributions to profit-sharing plans and contributions to registered pension plans and registered retirement savings plans (RRSPs) were raised.

The immediate events surrounding this tax reform episode were followed by the government decision in December 1971 to vacate the estate and gift tax field on the grounds that taxing accrued gains at death on top of the estate taxes would be unfair. The revenues from the latter were already small, and, because of provincial policies, it was regarded as impossible to establish a uniform national estate tax system.

The 1971 legislation would seem to have involved sufficient major changes to basic elements of the tax system to qualify it as tax reform. However, if the essential themes of the Carter Commission proposals are used as criteria, it can be seen that the 1971 legislation reflects the original proposals to only a limited degree. What was central to the Carter *Report* was the supremacy of the personal income tax; what this implies for the corporate income tax and the sales taxes; the use of a broad income concept in defining the tax base; and the recognition of the family as a tax unit. What was accomplished were some marginal rate reductions; limited base–broadening to include half of realized capital gains, unemployment insurance benefits, and adult training allowances and scholarships as taxable income; and, to a certain extent, some recognition of the family tax unit by allowing the transfer of gifts and bequests to a spouse. The general averaging provisions and some deductions for employment and child care expenses adhered more closely to the Carter proposals.

To Bucovetsky and Bird (1972), however, the most interesting aspect of this reform episode was the use of the white paper by the government as a means of stating its position on tax reform and getting feedback (through the hearings conducted by the House of Commons standing committee on finance, trade and economic affairs and the Senate standing committee on banking, trade and commerce) before taking its final stance. They stress how crucial public consultation is to the tax reform process, even though special interest lobbies are inevitably better mobilized than the general public. They see major problems with the public consultation process, especially the limited staff and resources at hand and the lack of qualified staff to review and comment on the more elaborate aspects of tax proposals. The problems involved with this process become quite clear when one considers that the tax reform bill of 1971 required 175 amendments in both 1972 and 1973, 146 in 1974, 75 in 1976, and 95 in 1977 (see Hartle, 1982).

The 1962–71 reform period was also significant because it was characterized by great interest in the tax system, how it should be improved, and why. The process that ensued is important, since it revealed the inadequacies of allowing only a periodic overall review of the tax system,which

is then passed over to other bodies for further deliberation. The backlog of problems to solve and areas to tidy up in the tax system, even in this period, was clearly overwhelming and may be even more so today. It also revealed that, even when tax reform proposals make it to the bureaucratic level, the process can easily produce changes that only indirectly reflect both the original proposals and input from other levels.

Also interesting is the limited impact this reform episode had on subsequent changes in the income tax in the 1970s.[10] The indexing of personal exemptions and tax brackets (introduced in 1974) was not discussed by Carter, and the introduction of the $1,000 interest income deduction and the registered home ownership saving plan (RHOSP), also in 1974, went in the opposite direction to the Carter theme of base-broadening. The $1,000 pension income deduction, introduced in 1975 and the extension of the $1,000 interest deduction to include all interest, dividends, and capital gains on Canadian securities continued the same trend. Only through the oblique move toward the notion of the family tax unit in allowing interspousal transfers of the age, interest, and pension deductions in 1975 did the Carter themes influence actual changes in these years. The Carter influence remained largely irrelevant until the 1981 federal budget, when a similar torrent of public reaction greeted the proposed tax changes.

The 1981 Federal Budget

The November 1981 federal budget reflected two stated goals; restraint, by reducing the deficit through increased revenues; and equity and fairness, by reducing existing tax shelters while lowering tax rates.

The tax rate reductions affected mainly upper-middle and upper income taxpayers (those with a taxable income of approximately $25,000 and over). The highest marginal rate was to be reduced to 50 percent from 65 percent. In terms of tax preferences, the major changes proposed were: the withdrawal of income averaging annuity contracts (IAAC) and other income-averaging provisions, to be replaced by a forward averaging mechanism; the taxation of employee benefits such as health services, dental plans and free travel passes, as well as low-interest or interest-free loans to employees, and an increase in the deemed value of taxable benefits from the use of a company car. Restrictions were to be introduced on the use of the interest expense deduction to the amount of investment income in a given year. Deductions were to be disallowed for interest on money borrowed to purchase RRSPs and other income deferral plans; limitations were introduced on tax exemptions for capital gains on the principal residence, now limited to one residence for each family; and capital gains reserve provisions were repealed. Other measures included the extension of the existing corporate surtax, the reduction of the annual capital cost allowance rate to half in the first year assets are acquired, the taxation of personal service corporations at full corporate rates, and proposals to

extend the manufacturers' sales tax to the wholesale level (see below).

This budget, perhaps more than any other postwar budget (with the possible exception of the 1963 federal budget, which was withdrawn), created great controversy. Lobbying was fierce and the general response was loud and negative. The budget proposals were modified three times (December 1981, June 1982, and October 1982) and finally resulted in legislation in 1983. In the end, the restricted interest expense reform was dropped, as was the taxation of employee health and dental benefits. The implementation of capital gains reserve provisions on property sales was delayed. Many other proposals were modified, their implementation delayed, or made subject to new exemptions and conditions.

The 1981 budget was clearly planned on a grand scale with a wide range of implications, most of which were to be immediate. The impression is that the political reaction to the withdrawal of tax preferences was poorly estimated.[11] This reform episode demonstrated instead that a committed assault on a wide range of perceived tax loopholes can achieve changes but that many of the proposals may have to be discarded as the political reaction mounts. It also demonstrated that transitional arrangements are often the key to implementing tax change. Much of the adverse reaction emanated from the small number of taxpayers adversely affected by the proposed restrictions on interest expense, and much of the reaction could have been muted by a phased introduction of these arrangements.

Also, because this was seen at the bureaucratic level as largely a tidying up operation, even if on a large scale, the involvement of the academic level in this reform episode was limited. The respectability of a broad philosophy for the tax changes, consistent with the climate of opinion at the first level of tax reform debate, could not easily be claimed. One implication that can be drawn is that for the bureaucratic level to proceed with substantive tax changes without sufficient preparation and consultation at the academic and political levels can easily become socially divisive, and ultimately counterproductive.

The 1984 Federal Budget

The 1984 federal budget presents a dramatic contrast to the 1981 budget. It successfully accomplished a major tax change in one key area (retirement savings plans), which went largely unnoticed by the media or the public in general, since the press releases at the time drew little attention to it. Unlike the immediate implementation proposed in the 1981 budget, this change is to be phased in in future years so that the inevitable compensating increases in other taxes become less apparent.

The major themes of the budget were those of securing growth and jobs. An employee profit-participation plan was introduced giving a tax credit of 10 percent of profits shared. The budget also aimed to simplify the tax system for small businesses by cutting legislation, shortening and

simplifying tax forms, reducing costs of compliance, and increasing tax savings for growing small businesses. A change was also made in the manufacturers' sales tax with a shift of the sales tax on motor vehicles to the wholesale level to eliminate an advantage given to foreign cars.

It was, however, the tax assistance proposals for retirement savings that were the most significant in terms of their impact. Access was to be given to tax assistance regardless of type of retirement savings vehicle, with an increase in tax deductions for contributions (18 percent of earnings up to a maximum of $10,000 in 1985, rising to $15,000 in 1988). The ability to carry forward unused deduction entitlements was proposed, and the limits on contributions were to be indexed to reflect changes in the average industrial wage. A new registered pension account was proposed to assist mobile workers.

Beyond the changes in the tax treatment of pension contributions, some further personal tax changes were made. Moving expenses were to be deductible for unemployed persons moving to take up employment or start a business. Tax relief was introduced for spouses making support payments. There was also special tax assistance to farmers. Farmers were to be able to invest up to $120,000 of taxable capital gains from the sale of a farm in an RRSP ($10,000 for every year they farmed land from 1972 to 1983). In the energy and resource taxes area, the incremental oil revenue tax (IORT) was deferred to 1985.

The 1984 budget has been described by Boadway and Bruce (1985) as "quiet reform," a term denoting major tax change concentrated in one part of the tax system accomplished without major public or media reaction or controversy. Whether one regards this as good, because it avoids divisive and acrimonious debate, or bad, because it downplays wider public input, the key seems to have been to announce the tax reductions to be introduced sufficiently far in the future that any linkage to other tax increases is not obvious. Also the ability to list a major change as but one of several, when all the others are more minor, seems to have been important in not drawing more public reaction at the time of announcement.

The Manufacturers' Sales Tax

In contrast to the experience with the 1984 federal budget, the manufacturers' sales tax has proven a veritable battleground of tax reform over the years. Despite its many problems, this tax has been in existence for over sixty years, and could justly be called the bad tax that won't go away. It has been criticized by virtually everyone who has looked at it for its use of notional values in its tax base, its bias in favour of imports, and its lack of neutrality among goods depending on levels of processing, marketing, and location.

It was recommended that it be moved to the wholesale level first in 1956. The Carter Commission *Report* in 1967 was of the view that the federal

government should avoid using indirect taxation of any form; it suggested a shift of the tax to the retail level (with certain exemptions), and hoped that the provinces would agree to administer the tax in conjunction with their own sales tax. The provinces were not enthusiastic, and reform of the manufacturers' sales tax was not pursued at that time.

In 1975, the federal government itself proposed in a discussion paper to replace the manufacturers' sales tax by a federal wholesale tax, a proposal that was heavily criticized. A commodity tax review group (Department of Finance, 1977) reviewed the criticisms and evaluated the alternatives, reporting in 1977 again in favour of the retail sales tax alternative as the most desirable, but acknowledging the impracticality of its implementation. The group favoured the wholesale sales tax as "the least disruptive" of all the alternatives. In the November 1981 budget the government announced its plan to change the manufacturers' sales tax, followed in 1982 by white paper proposals to shift the federal sales tax to the wholesale trade level. These proposals were sharply attacked by several submissions. Implementation was delayed first to January 1983 and then to the middle of 1984. A federal sales tax review committee, which was set up in 1983, recommended simply modifying the manufacturers' sales tax on an interim basis, until a longer term solution, such as a value-added tax, could be worked out.

These attempts to modify the manufacturers' sales tax illustrate only too well how pressures at the political level can frustrate reform.[12] Generally speaking, the input from the academic level on this issue has been small. The academic view seems to have been that if the tax is to be kept at all, it should be moved to the retail level.

However, changing the tax to a retail sales tax, or ceding the tax to the provinces for tax points in the taxation collection agreements, involves the consent of the provinces. The tax, undesirable as it is, is viewed by both the provinces and the federal government as a "hidden tax." Manufactures are priced on a tax-inclusive and not a tax-exclusive basis, and the perception is that many people are not aware that the tax is there. The provinces are reluctant to exchange this for a more visible retail sales tax, for which they would be blamed. Equally, under any arrangement with provinces involving trading this tax for tax points, the provinces would have to make good the revenue loss with another tax or by raising existing taxes (presumably their retail sales taxes), and the same issues would arise. The idea of changing the tax to one at a wholesale level, as proposed in the 1981 budget, has provoked strong political resistance even though the revenue implications are small. As Gillespie (1983b) notes, the organized lobbying efforts of just a few industry groups were sufficient to frustrate this proposal.

The experience with these previous reform episodes is therefore crucial in understanding why the possibility of a value-added tax is now under more active discussion than perhaps at any time previously in Canada.

The tax has few supporters on administrative grounds, since it is both more costly and complex to administer than a retail sales tax. Also, there would undoubtedly be substantial duplication in having a value-added tax at the federal level, and a retail sales tax at the provincial level. However, as a potentially politically acceptable way of replacing the manufacturers' sales tax with a tax that is an improvement on existing arrangements, this may be the only option. It can be administered on a tax-inclusive price basis and, since revenues would be collected at all stages of production, it can perhaps be portrayed as not a retail-level tax. As a base-broadening change, it offers the federal government the possibility of raising more revenues in the future through higher rates.

Trends in Tax Reform Issues

While the reform episodes described above are each complex, a small number of central themes can be identified in these debates. It is worth highlighting these because of their ongoing role in current and possible future reform debates.

Base-Broadening

The first is base-broadening, the theme of the Carter Commission. The prevalent view in the 1950s and 1960s was that the income tax operated on an unnecessarily narrow base, and that it was both possible and desirable to broaden its base and lower tax rates. This was seen as both improving economic efficiency and also achieving a fairer impact of the tax system on income distribution.

Internationally, the base-broadening movement has its roots in the divergence between the narrower concept of income implicit in the income tax and the broader concept of income which most economists use. The income tax, as introduced in the United Kingdom in 1799, was based on an income concept based on regular cash receipts. In more modern times, economists have argued for a broader concept of income, which represents the maximum potential consumption expenditure an individual can make over a period of time such that the value of his wealth is unchanged.

Thus, whether or not cash is involved and whether or not regularity is present in receipts have nothing to do with the definition of income as far as the economist is concerned. Anything that increases potential consumption is income. As a result, economists would like to tax the imputed value of rental income from home ownership, the full value of capital gains, and the sheltered income accruing to pension funds. Some would even go so far as taxing the imputed value of a housewife's services.

The tension between these two income concepts led to pressures for reform in several countries in the 1920s and 1930s because of the growing

use of tax avoidance devices, which, in effect, converted cash income into non-taxable broad income. Because the income tax was based on regular cash receipts, only dividends received from companies were taxable. Retained earnings, which were eventually converted into capital gains, went tax free, and hence the pressures for a capital gains tax. The large expansion of home ownership in the postwar years, and the obvious tax preferences being given to higher-income groups who had a significant fraction of their wealth in homes, had many economists arguing for the inclusion of imputed income from home ownership in taxable income.

Base-broadening in the income tax achieved its peak with the *Report* of the Carter Commission, which was internationally applauded as a major tax reform document and a model of logical consistency. However, the fact that since Carter the tax system (in Canada and many other countries) has in many ways evolved in directions opposite to the spirit of the Carter *Report* has left many economists disenchanted with base broadening. Base-broadening is now seen as logically consistent, if one accepts the income tax as the desirable redistributive tax, but politically naive. As a broad direction for tax reform, much of its impetus has been lost in the last ten years as other considerations have come more to the fore and as the political difficulties of implementing true base-broadening have become more obvious.

Tax Treatment of Savings

A subsequent direction for tax reform, which has emerged with the slippage of base-broadening as the major reform objective, has been the removal of disincentive effects of taxes on savings. One concern is the double taxation of savings through both the corporate and personal taxes, since recipients of dividends are doubly taxed under both the corporate and personal taxes. This has been the major driving force behind corporate tax integration around the globe. This was one of the factors leading to the partial taxation of capital gains in Canada, and has provided an ongoing issue for tax reform debate in the United States in recent years.

Perhaps more prominent have been concerns over the double taxation of savings in the income tax itself and proposals for a progressive consumption tax in place of the current income tax. Most consumption tax advocates base their arguments on the theme that an income tax produces double taxation of savings, since savings are made out of net-of-tax income and the income return to savings is further taxed. Removing this tax distortion is seen as achievable by replacing the present income tax with a progressive consumption tax, in effect our current income tax with no upper limit on RRSP contributions.

Advocates such as Kaldor (1955) argue that taxing consumption is philosophically preferable to taxing income, since individuals are taxed

on what they take out of the economic system rather than on what they contribute. Given the announced changes in RRSP limits in the 1984 budget, there seems little doubt that Canada is already headed down the consumption tax path,[13] and by 1988 a consumption tax will, de facto, be in force for all but the very highest income earners.

Some of the recent literature has also argued that a further difficulty with the current tax system is that different savings vehicles are also treated in widely different ways. Some savings qualify for tax shelters while others do not, and, in addition to tax-induced resource misallocation over time, there is a significant misallocation of resources among uses within each period. This has generated further support for the consumption tax as a way of simplifying the present system.

Inflation

Related to concerns over the tax treatment of savings have been those over the way inflation compounds with the tax system. These same concerns produced indexation of rate brackets in the income tax in 1974. Canada is unusual in having statutory indexation of tax brackets, although many countries have had de facto indexation through frequent adjustments in various budgetary measures.

Bracket adjustments, however, are only one of a number of ways in which the tax system needs to be adjusted for inflation, and these other factors have been prominent in recent reform discussions. In the corporate tax, depreciation is calculated on historical cost, not on a replacement cost basis. Capital gains, until recently, were calculated on an historical cost basis. Nominal rather than real interest received is taxable and, in turn, nominal rather than real interest paid is deductible. All these features would need to be changed in a tax system that was adjusted for the effects of inflation. This indexation debate is still ongoing, and some recent commentators have noted that a move to a progressive consumption tax would remove many of the problems leading to the need for such indexation.

Tax Simplification

A final issue is tax simplification, along with the problems of tax compliance and the underground economy. There are estimates now that in some countries the underground economy might account for 10 to 15 percent of GNP or even larger, much of it being propelled by tax avoidance. Not only is the size of the underground economy an issue, but both the size and the complexity of the tax system are widely perceived to be a major source of deterioration of taxpayer confidence, so much so that the tax system can no longer be easily administered with its present structure. Proposals such as that for a flat tax have therefore received a sympathetic

hearing because of the dramatic simplifications that its proponents have claimed could be achieved.

In 1982, the U.S. Congress began considering a whole series of flat-tax bills. The Hall-Rabushka (1983) proposal is one of the better known flat-tax plans and, along with the Bradley-Gephardt plan,[14] has attracted both interest and controversy. The authors view their plan as the solution to the many inherent problems of the U.S. tax system, such as the unnecessary complexity of the income tax, the loss of taxpayers' confidence in the tax system as a whole, the resources and energy wasted in both filing tax returns and avoiding and evading taxes, as well as the negative impact of tax rates on incentives. In essence, it consists of a simple flat tax imposed at the same low rate on everybody's income above a standard personal allowance.

The plan is to tax all income either as business income or as wages and salaries, at a flat rate of 19 percent with progressivity being a feature of the wage and salary tax through the use of a personal allowance based on marital status and number of dependants. Theoretically, for 80 percent of the population filing a tax return, this system would involve simply filling out an individual compensation tax form the size of a postcard once a year. The business tax, on the other hand, operates as a comprehensive withholding tax on all types of income other than wages, salaries, and pensions. The tax is collected at source from the owners of businesses on all income generated within the business. What can be deducted is the cost of intermediate inputs on which taxes have already been paid; wages, salaries, and pensions (whose recipients pay the compensation tax); and all outlays for plant, equipment, and land (first-year write-offs). The goal is to tax all income once at a common low rate. The business tax form also fits on a postcard. Negative taxes become a credit that can be carried forward to future years. Because of the expensing of plant, equipment, and land, the tax scheme is closely related to the various consumption-tax plans under active discussion and, as Carlson and McLure (1984) point out, it is also related to the value-added tax.

Can We Fundamentally Change the Tax System?

Irrespective of the outcome of debates among tax reformers as to possible future directions for tax reform, the issue that all reformers eventually have to deal with is whether the bureaucratic and political elements in the process are such that it is impossible to achieve comprehensive change in the tax system. The impression one has in talking to tax officials is that those currently associated with the day-to-day administration of the tax system believe that the status quo can often be extremely difficult to change. This perception has been given added force by the political reaction to the 1981 federal budget.

The 1981 budget was a crucial episode in Canadian tax history, since its basic philosophy was in the tradition of the base-broadening reform proposals of the 1950s and 1960s, and yet its implementation was controversial and many of the proposals were subsequently withdrawn. The basic approach of the budget was to plug loopholes, broaden the income tax base, and lower rates. Yet the political reaction to the budget was so strong that many of the proposals had to be changed. This has proved to be a classic case of a change that generates few strong supporters but a small number of committed opponents. Relatively little was heard from academic economists arguing in support of the budget, and the reaction in the media seemed, at times, to show a woeful lack of recognition of its tax reforming objectives.

The resources available to deal with tax policy matters within government are limited, and the process is such that tax policy experts end up spending much of their time dealing with the representations of special interest groups arguing either for some new tax preference they would like to have or for the maintenance of whatever tax preferences favourable to them currently exist. The room for manoeuvre in tax policy seems to be widely seen in these circles as being small. Change becomes modest, and proposals for reform less comprehensive. These are important considerations when evaluating where Canada may be headed in future years, since these constraints may ultimately define the admissible set of policies for actual tax change.

Our sense of current developments in the area is that tax simplification could become a dominant theme in tax reform in the years ahead. The need for it is now a strongly entrenched perception at the political level, and other routes to tax reform have been tried and rejected. Steps to simplify the tax system will therefore be actively sought by politicians and others, since simplification is such a hard thing to disagree with.

In closing, therefore, it is perhaps worth asking whether the current flat-tax proposals represent the only route toward tax simplification. Can the tax system be changed and, in the process, simplified, or is this a hopeless task?

In approaching this question, a number of different dimensions to tax simplification are perhaps worth mentioning. First, there are simplifications associated with base redefinition. Some of the recent advocates of a consumption tax, for instance, base their arguments not only on the adverse efficiency impacts of the income tax, but also on the tax simplification gains involved with such change. Many of the income-averaging problems emanating from a progressive income tax can be largely eliminated through self-averaging in a consumption tax administered through a system of designated and non-designated assets as originally proposed in the U.S. *Blueprints* document (U.S. Department of the Treasury, 1977). Also, problems with indexation of tax treatment of capital income disappear. The

consumption tax, however, is likely to be politically impracticable, since it is seen as giving tax breaks to the rich, who do most of the saving. The changes in the 1984 federal budget,[15] which take us a long way toward a consumption tax, have the political virtue of not using the term to describe them.

Further simplifications are possible with rate simplification. The essence of the Hall-Rabushka plan (1983) is to use identical rates in corporate and personal taxes. All problems with income averaging are eliminated, as are problems with income splitting. Problems of preferential tax rates for capital gains and differential tax rates on pension and sheltered income would also disappear. Rate simplification, however, involves an elimination of progressivity in the rate structure, and a levelling of tax rates across different income sources, a politically unlikely event since such a change is seen as a regressive change in the tax system.

Further simplification is possible through tax consolidation. This could be achieved on a tax-by-tax basis, or across levels of government. In Australia and New Zealand, for instance, social security taxes and related contributions such as health care premiums are now consolidated into the income tax. This simplifies the tax system, but in Canada it would remove the contribution-based financing system for social services such as the Ontario Health Insurance Plan, Unemployment Insurance and the Canada Pension Plan.

Part of the complexity of our tax system also stems from differing financing needs of the various levels of government, and simplification could come from consolidation. The property tax is the mainstay of municipal governments. Provinces have the retail sales tax, and in the last few years have been opting out of the tax-sharing agreements for the corporate tax. More centralized countries such as those in Europe, which are closer to being unitary states than is Canada, do have a greater ability to simplify their tax system by eliminating or reducing local taxes. In some Scandinavian countries, for instance, local property taxes effectively no longer apply because of extensive revenue sharing between central and local governments.

Tax simplification remains relatively new territory for tax reformers and, if experience is any guide, the attractions of the new frequently prove irresistible in this as in other areas. As yet relatively little has been thought through in Canada on this set of issues. However, what may ultimately be needed to simplify the tax system is also a simpler tax reform process than that which has characterized previous reform episodes. If, as we suggest, process is so integral to reform this will likely prove to be the case, and the idea proposed by Bucovetsky and Bird (1972) in the aftermath of the Carter Commission of a permanent tax review body with trained staff and a tradition of independent investigation may need to be given new and serious consideration.

Notes

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This is an expanded version of an earlier paper presented in Ottawa on July 19, 1984, at a symposium on tax reform organized by the Royal Commission on the Economic Union and Development Prospects for Canada. Its original purpose was to take a wide-ranging view of tax reform in Canada, but, as it developed, the process rather than simply the content of reform became the dominant theme. It has been included as one of the Commission research papers because of its stress on the integration of institutional process into economic policy evaluation, and is complementary to the paper by Boadway and Bruce which summarizes the proceedings of the symposium.

1. In fact, tax reform is viewed by some as a change prompted in a tax system relative to some underlying equilibrium process. In order to maintain equilibrium, any change in any of the variables of the system creates a need for other, complementary change in the system, change that must be implemented at minimum political cost. See Gillespie (1983b) for such a model of tax reform.
2. There has also been more weight given to the view that redistribution can be achieved more efficiently on the expenditure side of the government's budget.
3. This form of taxation had originally been proposed by the Shoup Mission in Japan (1949) but was never implemented in that country (Shoup, 1970).
4. For a more general discussion of this issue in the context of determinants of the political costs of tax reform, see Gillespie, 1983b.
5. On this issue, however, the Commission's *Report* made an important compromise by recommending that capital gains should be fully taxed but on realization and not on accrual (see the discussion in Harberger, 1968).
6. According to Bucovetsky and Bird (1972), this phenomenon is an illustration of the "least common denominator principle of taxation," where the level of taxation of mobile factors will be determined by the lowest level prevailing in the jurisdiction where the factors can move. This principle is also a factor in the tendency for tax integration at the international level.
7. This section draws heavily on the discussion of these events in Bucovetsky and Bird, 1972.
8. For a detailed description of the bureaucratic process involved in formulating tax policy in Canada, see Hartle, 1982.
9. As already mentioned, the Commission compromised on this point by recommending taxation of realized capital gains instead of accrued capital gains.
10. Allan, Poddar and LePan (1978) examine the relative importance of reform and post-reform changes in the personal income tax.
11. See Gillespie (1983a) for a statement of another view, namely that the 1981 budget was a calculated attempt designed ultimately to de-index the personal income tax.
12. For more discussion see Thirsk (1984), Boadway and Kitchen (1980) and Gillespie (1983b).
13. Although this approach might produce a "compromise" tax, which is neither a true income tax, or a true consumption tax, and could make matters worse (see Break, 1984).
14. This refers to the Bradley-Gephardt bill called the "Fair Tax Act" introduced as Senate bill 1421, June 8, 1983.
15. However, it is not clear to what extent this particular set of tax changes is in response to the present trend in academic circles to favour the consumption tax or anticipates the potential influence on tax policy of demographic factors in the future.

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Public Policies for Controlling Environmental Use

WILLIAM SCHWORM

Introduction

The air and water resources of Canada have appeared until recently to be so bountiful that they could accommodate all valuable uses. Since such uses did not appear to conflict with each other, no choices about alternatives were necessary. Unfortunately, circumstances have changed in the last several decades so that now our air and water resources in many locations cannot handle all the demands placed upon them. The consumption of water for domestic, industrial and agricultural purposes has reached levels that are straining the available supplies. Moreover, the emission of pollutants into the atmosphere and waterways has reached levels that are damaging to other users of the environment. With our air and water resources becoming scarce, social decisions have to be made about how to allocate them.

A majority of the scarce resources in Canada are allocated among competing ends by the individual decisions of consumers and producers operating through markets. Economists have shown that, under certain ideal conditions, the allocation of scarce resources achieved through markets is efficient. Many people claim, however, that our environmental resources are not being efficiently utilized in economic terms. They point to factories polluting the atmosphere or the waterways as evidence of environmental abuse. The use of the atmosphere or the waterways to carry away pollutants, however, is a "valuable use" of these resources. It does of course conflict with other uses, but conflict among competing users simply reveals that the resource is scarce. Is the pollution of the air and water in Canada a consequence of efficient use of resources or is it a consequence of market failure in rationing environmental resources?

In this paper, alternative public policies for controlling the use of environmental resources are discussed. In the following section, the characteristics of resource allocation through markets are described within the context of the idealized circumstances of the traditional economic model. When markets are functioning well, resources are allocated efficiently, decentralized decisions are coordinated by the market, and self-interested decision makers have an incentive to recognize social costs and social benefits. In addition, there are reasons to expect markets to respond rapidly to new information and changing circumstances.

In the third section, I ask whether or not the use of environmental resources can be efficiently controlled by markets. The issue is whether there are special features of the environment that cause markets to function well or poorly. Circumstances are identified and discussed in which markets for environmental resources are unlikely to exist. The primary difficulty in controlling environmental use arises from the pervasive interdependencies that exist among users of our common environment. Both the atmosphere and the waterways are public goods that can be jointly consumed by a large number of users. When the public nature of the environment is important, then markets cannot function well and usually will not exist. When markets do not exist to allocate environmental resources, there is a systematic incentive for all users to excessively utilize the environment.

The fourth section looks at controlling the use of the environment through private cooperative agreements. The individuals who jointly use the environment can cooperate and mutually agree on its use. This is an important method of controlling environmental use when the number of participants is small. When the number of persons using an environmental resource is large, however, cooperative agreements become unmanageable.

Next, the role of the legal assignment of property rights in controlling environmental use is discussed. Whether or not markets exist for certain uses of the environment can depend upon the specification of property rights. In addition, when a market does not exist, the assignment of legal rights can have a dramatic effect on resource use.

In the rest of the paper, alternative public policies for controlling environmental use are described. Each of the policies would require a substantial government agency to develop, monitor and enforce environmental policy. Therefore, I discuss first the general problems that face an environmental agency: next, separate sections deal with three types of environmental policies. The control of environmental use by the imposition of several different types of standards has been the most common type of environmental policy to date. Tax-subsidy schemes have been proposed frequently by economists as being superior to standards; however, there are important circumstances in which this is not the case. A policy that has attracted much attention in recent years is the issuance of marketable permits for environmental use. Some schemes combine tax-subsidy policies with marketable permit policies.

I conclude with some comments about the importance of flexibility in developing environmental policies. The appropriate policy for controlling use of the environment depends on many factors. The best policy will be different for different resources and in different areas and will change over time. Rigid policies must be avoided.

Resource Allocation in the Economic Paradigm

A central tenet of traditional economic theory is that an efficient allocation of resources can be achieved by the self-interested behaviour of individuals trading in competitive markets.[1] An allocation of resources among alternative uses is said to be efficient if there is no reallocation that can make one person better off without making someone else worse off. If an allocation is inefficient, then production can be altered and commodities reallocated in such a way as to improve one person's welfare without harming anyone else.

In markets, a central allocative role is played by the prices of commodities. Each consumer considers the market prices when choosing purchases of commodities and sales of labour services and owned resources. Similarly, each producer considers the market prices when choosing the resources to hire and the commodities to produce. Any change in market prices will cause consumers to alter their consumption and resource supply decisions and firms to alter their production decisions.

In such circumstances, what ensures that the autonomous decisions of firms and consumers are consistent? In a market economy, prices serve to coordinate production and consumption decisions so that they are mutually compatible. The market demand for a product at given prices is the sum of what all buyers choose to purchase at those prices. The market supply for a product at given prices is the sum of what all sellers choose to sell at those prices. A market equilibrium occurs whenever prices cause demand to equal supply in every market. In a market equilibrium, every buyer and seller can actually carry out the planned transactions in every market because these decisions are consistent in aggregate. When all trades are completed through competitive markets at equilibrium prices, an efficient allocation of resources results.

The assumptions underlying this hypothesis are widely recognized to be restrictive and often inadequate descriptions of the world we actually inhabit. This is especially so when the complexities of changes over time, uncertainty and imperfect information are taken into account (Dasgupta, 1982). There is a widespread belief among economists, however, that markets do perform their allocative function more efficiently than alternative institutional arrangements in many situations.[2]

The reason for this belief is twofold. First, markets provide a decentralized method of allocating resources. Individuals in a market make decisions about their own consumption and production. There is no overall

coordination of individual decisions except that achieved by the autonomous working of the market. A minimum of information and communication is required to make decisions, and no organization is required to achieve coordination. Therefore, the difficulties associated with bureaucratic decision making are avoided.

Second, equilibrium prices provide self-interested persons with an incentive to make choices that are socially efficient. Every consumer who must pay a price for a commodity is forced to recognize the value of the resources used to produce the commodity. Every producer who receives a price for a commodity recognizes the value to consumers of the commodity. Therefore, equilibrium market prices harness the self-interested behaviour of individuals and induce them to make socially efficient decisions.

Many economists believe that the advantages of markets are most striking in the context of a changing and uncertain world (Hayek, 1945; Nelson, 1981). The decentralization and incentive structure of a market allows a rapid response to sudden changes or new information because communication and coordination among all decision makers is not necessary.

There are circumstances, however, in which markets do not provide correct incentives to consumers and producers.[3] One such circumstance is when a market is not competitive. In a competitive market the trades of any individual buyer or seller are an insignificant proportion of the market transactions and do not affect the market price. If participants in a market are individually large enough to affect prices, then they will consider their effect on prices when making decisions. This non-competitive behaviour will distort prices and result in an inefficient allocation of resources.

A second circumstance in which a market provides incorrect incentives occurs when prices are not equilibrium prices. In this case, markets are not serving their coordination role, and market participants are receiving incorrect incentives that result in an inefficient allocation of resources.

A third circumstance in which there are incorrect incentives occurs when a market fails to exist. In this case, a commodity cannot be exchanged even though different persons may place very different values on the commodity.

So far we have evaluated markets in terms of their efficiency and responsiveness to change. A third criterion used to evaluate resource use is its fairness or equity. A variety of concepts of equity have been proposed but no consensus has emerged on its definition (Osberg, 1985). For almost all notions of equity, however, there are no realistic circumstances in which both efficiency and equity can be achieved. Efficiency and equity are necessarily intertwined, and some amount of one may have to be sacrificed in order to obtain more of the other. Any policy will have both efficiency and equity effects which must be considered in evaluating the policy.

The Potential Inefficiency of Environmental Use

If the appropriate markets exist in which the use of the environment can be transacted, then the environment may be utilized efficiently. Due to special characteristics of the environment, however, there are circumstances in which the markets necessary for the efficient use of air and water do not exist. If there are no markets in which transactions affecting the environment can be made, and if no alternative institutions for controlling environmental use are created, then there is a systematic incentive to use the environment inefficiently.

The use of environmental resources by many individuals causes pervasive interdependencies among producers and consumers.[4] The environment, like other resources, has many alternative uses. Unlike many other resources, however, it can be used simultaneously by many different users. For example, individuals can swim in the same water that will be used as drinking water in a nearby town before it is used to carry sewage downriver. Similarly, factories can emit pollutants into the air which is in turn breathed by individuals living near the factory.

Although the environment can be used simultaneously by numerous producers and consumers, each use may alter the characteristics of the environment in a way that is either beneficial or detrimental to other users. A town dumping sewage into a river may make the river an unpleasant place to swim and may burden the purification facilities of the town that obtains its drinking water downriver. Factories and automobiles polluting the air in a city can dramatically alter the living environment of all individuals, increase cleaning costs and impose health hazards.

Although all individuals' decisions are interdependent in an economy with scarce resources, the traditional economic model allows a minimum of interdependence among consumers and producers. Goods and services are consumed by an individual without any effects on others, and the decisions of other consumers and producers are assumed to have no effect on that same individual except insofar as they affect the goods consumed. Similarly, producers' technologies are assumed to be independent of the decisions of other producers and consumers in the economy. These assumptions of independence of preferences and technologies are severe restrictions on the modelling of actual interactions among people.

Simple examples reveal how widespread interdependencies are in actual economies. Many persons care about how others around them behave and dress and how their neighbours keep their lawns. Persons living near airports care about how many planes take off and land each day, whereas those living near highways care about the number of drivers on the highway and the state of their mufflers. These types of interdependencies are prevalent in all social circumstances.

Extensive interdependencies among consumers and producers are a consequence of using a common environment. Does the existence of such inter-

dependencies cause markets to produce inefficient resource allocations? The answer is no if the other assumptions about markets continue to hold. In this case, markets can be efficient even with extensive interdependencies. However, the existence of important interactions among individuals renders it much more likely that some of the essential assumptions underlying the efficiency result for competitive markets will fail to be satisfied.

Consider a simple example of a town with one inhabitant and one factory.[5] The inhabitant works for the factory and the factory produces output for sale elsewhere, but pollutes the local atmosphere. The consumer in the town cares about the labour supplied to the firm and the pollution received from the firm. In this case, there appears to be no fundamental difference between the labour supplied and the pollution received. Suppose there is a market for labour services and pollution in the town and that the factory has the right to pollute. Then, a competitive wage in the labour market will ensure an efficient amount of labour is exchanged. Also a price for pollution reduction paid by the inhabitant to the firm would ensure that an efficient amount of pollution is produced by the factory and consumed by the inhabitant. If the factory does not have the right to pollute then a market price for pollution will be paid by the factory to the inhabitant.

To continue with a slightly more realistic example, suppose the town has many inhabitants but only one factory. There is a labour market in which each worker supplies labour and the factory hires labour. A competitive market wage induces an efficient trade of labour services. Now, imagine there is a market for pollution in which inhabitants of the town pay the factory to reduce pollution. There is a fundamental difference in the labour market and the pollution market. If one worker decides to work less, this does not affect any other inhabitant in the town. If one person decides to pay the factory to reduce pollution a bit more, however, all inhabitants benefit from the reduction in the pollution. The fact that all inhabitants jointly consume the air causes their decisions about transactions in the pollution market to be interdependent.

The effect of this interdependence on the competitive prices is striking.[6] Because everyone benefits from a reduction in pollution, the price received by the factory for reducing pollution is not the amount paid by a single inhabitant. Rather, the factory receives the sum of all the payments by the inhabitants. In the market for labour, the producer pays the wage that the worker receives. Due to the public consumption of the atmosphere, however, the factory receives the price for pollution reduction that is the total price of all inhabitants. Because different inhabitants of the town will generally have different preferences for clean air, the price paid by each inhabitant will differ. Therefore, the pricing structure for efficient use of the environment is complex even in this simple example. It is the case, however, that, if markets for pollution were to exist and all market

participants treated prices as given, the level of pollution implied by competitive markets would be efficient.

Unfortunately, it is completely unreasonable to suppose that inhabitants will treat person-specific prices as if they were exogenous. All inhabitants in the town will know that their individual behaviour can affect the price they pay for pollution reduction. Once people recognize their impact on prices in making decisions, the decentralization property and the efficiency property of markets is lost.

In addition, there is no decentralized mechanism for determining and establishing these prices for environmental use. The public nature of the environment creates the well-known ''free-rider'' problem. Each inhabitant of the town would benefit economically by paying nothing for pollution abatement while all other inhabitants pay a lot. As each inhabitant benefits from the pollution abatement purchased by others, a person who pays nothing or a small amount gets a free ride. Because all of the town's inhabitants have an incentive to refuse to pay for pollution abatement, no market can be established for pollution abatement.

Therefore, there are sound reasons why no market transactions occur for some types of environmental resource use. The common use of the environment by a large number of consumers and producers causes competitive markets to fail to function. If markets do not exist for environmental use, then no prices are generated to guide resource use and there is no institutional mechanism that forces polluters of either water or air to consider the effect of their decisions on the welfare of others. As a consequence, all users of the environment treat it as a free good. For example, a factory polluting the atmostphere treats the pollution as having no costs even though the pollution may impose high costs on other factories and on persons living in the adjacent area. Similarly, individuals driving automobiles ignore the effect of the car's emissions on others. A town draining its sewage or plants dumping pollutants into a river ignore the effects of their actions on the quality of the water or the costs of purifying the water downstream. Therefore, efficient use of our environment as a scarce resource is not achieved.

There are, however, environmental resources that do not have this common property aspect and are more amenable to allocations through markets. Consider individuals living along a river and consuming its water. If the river were owned, each user could be charged for water consumption. In this case, there are no public goods aspects of the consumption and a market could exist for water. In many instances, the markets would be unlikely to be competitive but in others competition could arise.

There are several other characteristics of the environment that, although not precluding the existence of efficient markets, make markets less likely to control environmental use in a socially desirable fashion. The first is that current environmental use can have major effects over time. By heavily

polluting the atmosphere and waterways today, we can impose large costs on future generations who will inherit the polluted environment. Alternatively, by incurring the costs of reducing and cleaning up pollution now, we can provide a benefit to future generations. Therefore, environmental use involves potentially large transfers of costs and benefits over time and among different generations. Private decisions concerning environmental use may not correctly reflect social goals about intertemporal and intergenerational transfers.[7]

A second important characteristic of the environment is that some effects of current use are irreversible (Dasgupta, 1982). Future generations will be unable to alter decisions that previous generations have made. For example, water in underground aquifers is naturally renewed over time, and water can be withdrawn without damaging future generations. If the level of an aquifer in coastal areas is lowered sufficiently, however, then the aquifer can be contaminated with saline water and rendered useless to future generations.

A third important characteristic of the environment is the uncertainty of the effects of some types of current use. For example, some people think that the accumulation of carbon dioxide in the atmosphere can have a substantial impact on the surface temperature of the earth. Relatively small temperature changes can have severe effects on ocean levels and agriculture; large temperature changes can have catastrophic effects. Because individuals cannot insure themselves against such future uncertainties, private decisions about environmental use may not adequately consider them (Arrow, 1970; Dasgupta, 1982; Dasgupta and Heal, 1979).

Therefore, there are several characteristics of the environment that can cause markets for environmental use to fail to exist or to function quite poorly. Whether or not these factors are important enough to consider alternative institutional arrangements depends on circumstances that differ across Canada and change over time. In many areas of Canada, all users of both air and water can be accommodated. The self-cleansing properties of air and water prevent pollution from reaching levels that interfere with other uses. Also, the flow of water in rivers and the level of lakes and ground water may be sufficient to satisfy all demands for in-stream and out-of-stream use. In other areas, however, pollution is reaching serious levels. Acid rain is doing substantial damage to lakes and forests. The many demands on water resources in some areas can no longer be met. In the future, increases in population, economic growth, changes in industrial structure and location, and technological processes may continually change the environmental resources that are scarce.[8] Therefore, the appropriate policies for environmental use must recognize geographic diversity and potential changes over time.

Cooperative Agreement for Environmental Use

Much economic activity that occurs in the private sector is not performed in markets but is coordinated through contracting or cooperative agreements.[9] For example, when a firm and a labour union representing its employees sign a contract concerning wages and employment, this is not a market transaction but a cooperative agreement. There are circumstances in which efficient environmental use can be achieved through cooperative agreements.

Suppose there are several farmers who use a river's water to irrigate their lands. If the flow of water is insufficient to meet their joint demands when there is no price for water, the farmers have an incentive to agree among themselves to an efficient use of the available water. There are numerous examples of efficient use of water resources achieved through cooperative agreements, both with and without government involvement (Hirshleifer, de Haven and Millman, 1960; Anderson, 1983).

The primary difficulty with cooperative agreements is that they do not have the decentralized property of markets. All participants must cooperate in determining the use of the resource, and their behaviour must be coordinated through the agreement itself. Although this works reasonably well with a small number of parties to the agreement, the costs of bargaining can outweigh the gains when a large number are involved (Baumol and Oates, 1975).

In order to develop agreements for the common use of an environmental resource, the free-rider problem must be overcome. Consider the example again of a factory polluting the air in a town with many inhabitants. It may be in the interest of all inhabitants to contribute money to pay the factory to reduce pollution. It is in the financial interest of each individual, however, not to be a party to the agreement and to pay nothing. If each individual free rides, there can be no agreement. Although this problem can be overcome in small groups with sufficient information and low bargaining costs, it can become insurmountable when large groups are involved.

The Role of Property Rights

Whether or not markets exist or agreements are reached over environmental use can depend on the legal assignment of rights concerning the environment (Coase, 1960; Anderson, 1983). Therefore, an alteration in the law on environmental resource ownership and use can dramatically affect the efficiency of the resource use. The literature on the law concerning water rights is replete with examples.[10] Suppose all persons adjacent to a river can consume any quantity of the river's water but cannot sell this right. Then, upstream users will tend to ignore the effect of their con-

sumption on those downstream. Some downstream users may receive an insufficient flow even though they place a higher value on consumption than some upstream users. An efficient allocation of water could be obtained by changing the law to let each person have a transferable right to a specified quantity of water, for then a market could arise in which the owners of water rights bargained with prospective users. In this example, efficient resource use results from well-specified property rights because the example has no public goods aspects: when one person consumes the water, another person cannot consume the same water.

If there is joint consumption of the environment, then well-specified property rights will not generally result in efficient use. In the example of the factory polluting the town, efficiency will not be achieved by any assignment of rights. When the only factory in town is given exclusive rights to the atmosphere, the costs of bargaining with the town's inhabitants is not reduced. Similarly, if one person in the town had exclusive rights, the free-rider problem, which is a major impediment to an agreement, would not be solved. Even in this case, however, the specification of legal rights can have a dramatic effect on resource allocation.[11] If the factory has the right to pollute and it is too costly for the inhabitants to bargain collectively with the factory, the factory will pollute as if there were no cost of polluting the atmosphere. If the inhabitants have the right to clean air and the factory does not have the right to pollute there will be no pollution of the atmosphere. In either case the outcome is inefficient, but a policy maker might prefer one to the other.

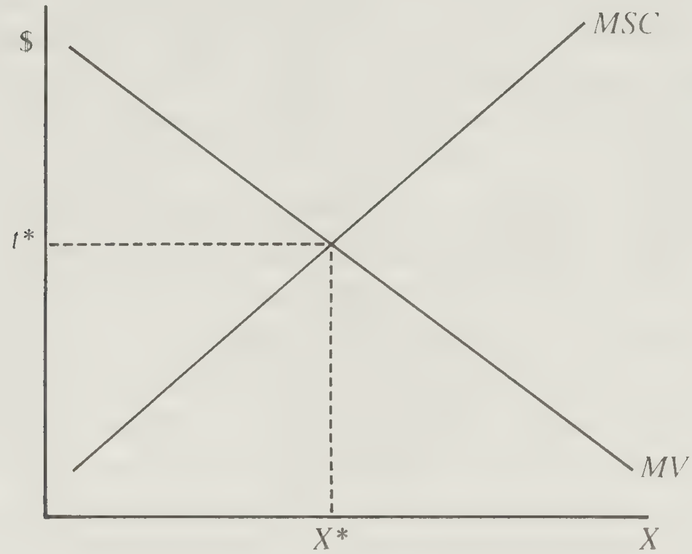
Public Policy for the Environment

The inadequacy of markets or cooperative agreements to provide an efficient use of environment resources in some circumstances suggests that alternative institutional arrangements be investigated. Alternative methods may improve upon the inefficient use of the environment achieved through the market mechanism when there are incomplete markets but, of course, they may also have organizational problems dealing with environmental resources. In this section, some of the principal difficulties of operating a governmental agency to control the use of the environment are described.[12]

All the policies to control environmental use discussed in the next several sections require a large administrative staff for collecting information, making decisions, monitoring compliance, and enforcing regulations. Therefore, the costs of administering any policy are substantial.

The information needed to implement an ideal environmental policy is extensive and difficult to obtain. Consider the difficulties of controlling the level of air pollution in a town. To begin with a very simple example, suppose a single firm is polluting the atmosphere in a town with a single pollutant. Let X measure the level of the pollutant in the air on a single

FIGURE 6-1 The Economically Efficient Level of Pollution and the Efficient Tax on Pollution



Note: X^* is the efficient level of pollution for the graphed *MV* and *MSC* curves; t^* is the tax on pollution that would induce the efficient level of pollution.

day and suppose this is the same as the factory's emissions during the day. Suppose the effect of the pollutant on the town's inhabitants can be summarized by a schedule describing the marginal social cost (*MSC*) of the pollution. This schedule, shown in Figure 6-1, measures the increase in social cost caused by a unit increase in pollution. Suppose that the ''value'' to the firm of the pollution can be summarized by a schedule describing the firm's marginal value of pollution (*MV*). This schedule measures the value to the firm of disposing of an additional unit of pollution — and could measure the savings from not having to use pollution abatement techniques. The efficient level of pollution (X^* in the figure) is the level at which the marginal value to the firm is equal to the marginal social damage.

An environmental agency that wants to achieve the efficient level of pollution must obtain information on the marginal value and the marginal social cost of pollution at each level of pollution. How is this information to be obtained even in this simple example? The polluter generally will have a variety of techniques available for reducing pollution each with a different cost. Each inhabitant of the town will incur a different marginal cost from the pollution. While information on abatement costs might be available from engineering information for the factory, there is no readily available method for determining the cost of pollution to consumers. Attempts to obtain this information by surveys of consumers encounter the free-rider problem. Inhabitants of the town have an incentive to distort their true valuation of pollution abatement. If people know their reported

value has no effect on their share of the policy's cost, they have an incentive to exaggerate their valuation of pollution abatement in order to encourage a policy of high abatement. If on the other hand they will pay a fixed price for every unit of pollution abatement they request, they have an incentive to report a low amount of pollution abatement while hoping that large abatement is financed by others. Although theoretical schemes have been constructed that elicit honest reporting, they are impractical in most situations.

In more realistic examples, the difficulties of obtaining the requisite information are even greater. Where there are numerous polluters, the marginal value of each level of pollution needs to be known for each polluter. Industrial processes vary among polluters and so abatement costs also differ. Detailed information on all the diverse elements is thus important when constructing a policy of environmental control. Even if all available information is gathered, however, many different pollutants interact in ways that are frequently unknown and depend upon geological and meteorological conditions. Also, the cumulative effects of pollutants on the environment and human health are frequently unknown.[13]

Other types of information are important for environmental policy and difficult to obtain. For instance, effects of policy on income distribution can be difficult to predict in advance and to measure after the fact. Environmental policy not only has its direct costs and benefits but also has effects on prices and the use of resources throughout the economy. Therefore, the effects on income can be indirect and pervasive.

Once decisions are made about the policy to be implemented, compliance must be monitored and enforced. Because policy is most needed precisely when there are large numbers of users of the environment, monitoring and enforcement is an extremely difficult problem. In the case of both air and water pollution, there are frequently an enormous number of sources of pollution, so that devising feasible policies is extremely difficult.

An additional problem associated with a governmental agency that implements social policy is the problem of incentives. Does the agency have incentives to implement the appropriate social policy even if it is known? If not, what goals will the agency actually strive to attain? A recurring problem with public regulation is that groups with much to gain or lose may devote extensive effort and resources to influencing public policy. Therefore, a few large polluters may have undue influence whereas many small polluters and those damaged by pollution may have insufficient impact on decisions.

There is frequently little role for decentralization in environmental control policies. The control of different polluters and different types of pollutants are interrelated and although information collecting and monitoring may occur in a decentralized manner, coordinated decisions will be necessary for an environmental policy. In addition, the problem

of incentives of individuals within an agency limits decentralization by requiring internal monitoring.

Governmental agencies are often accused of being unresponsive to new events and uninnovative. If a rigid hierarchy has been established to process information, to coordinate decisions and to control the implementation of decisions, then an agency is likely to respond slowly to change (Nelson, 1981). Moreover, the agency may not have strong incentives to be innovative or to respond to change. Because an environmental policy can become inappropriate over time because of economic growth and technological progress, rigidities in public policy can be costly.

Any policy for regulating use of the environment in Canada must face serious jurisdictional problems (Hjalte, Lidgren and Stahl, 1977). The natural administrative area would appear to include all uses and effects of the environmental resource. The appropriate area for managing a river is the watershed area. There are difficulties that arise because the appropriate managerial region for a resource may not correspond to an existing political division. In addition, although the major effects of a resource may be local, small effects may occur at great distances. Also, an environmental policy can change the location of environmental effects. In response to air pollution in towns in the midwestern United States, laws were passed by the affected towns requiring higher smokestacks on factories. The effect was to reduce local smog at the expense of more acid rain; the high chimneys emitted sulphur dioxide higher in the atmosphere so that it was carried great distances before producing acid rain. Managing environmental resources in Canada will frequently require the cooperation of several provinces and the federal government. The effective control of acid rain and cleaning up of the Great Lakes and a number of waterways will also require the cooperation of the United States.

Standards for Environmental Use

Public policy toward pollution has most frequently been to set standards for polluters either by law or by regulatory agency pronouncements. Standards can take a variety of forms: a maximum level of emissions of certain pollutants; a minimum ambient quality for the environment at specified locations; a requirement for pollution abatement equipment; or a restriction on the technological processes or raw materials that can be used in production.[14] We discuss the merits and demerits of each of these types of standard policies.

The first decision that must be made to implement a standard is what characteristic of the environment is to be controlled. The most ambitious policy is to specify ambient quality standards for the environment. For example, an ambient quality standard for air pollution would specify maxi-

mum quantities of a list of pollutants that would be allowed at each monitoring station. Similarly, an ambient quality standard for a river basin could control the water flow and the quality of the water in a variety of dimensions at selected points along the river. The most obvious advantage of this type of policy is that it controls aspects of the environment closely related to what users care about.

Ambient quality standards, however, do not actually measure just those aspects of the environment consumers are concerned with but rather factors more or less related. For example, the inhabitants of a town are concerned with their health whereas the standards control the level of pollutants in the air. Although these are related, the relation is uncertain and varies according to geographical and meteorological conditions. Choosing an efficient level of the standards requires knowledge of these relations. In addition, the relationship between emissions and ambient quality must be understood. If an ambient quality standard is not being met, who is responsible? Who has to reduce emissions and by how much? In many cases, the number of polluters is large and the impact of emissions on air or water quality is very complex. Identical emissions of two factories at different locations can have very different effects on ambient quality. In some fashion, however, regulators have to associate emissions of each polluter with ambient quality. Therefore, once decisions are made about how to maintain the environmental quality, an ambient quality standards system can become essentially an emission standards system.

Although monitoring the air or water quality is feasible and has been done, it is costly. Numerous stations with expensive equipment are required to measure the quality of either air or water. Emission standards have an apparent advantage over ambient quality standards in that emissions can be measured at the source and numerous sensor stations in the surrounding environment are not necessary. When the number of sources is small, this is an advantage. To determine the efficient level of emissions, however, the connection between emissions and quality must be known. If monitoring of the environment is not done, then the calculation of emission standards is based on poor information. Second, in many cases the number of polluters is enormous. In a town, every house and building with heating, every automobile, and every factory is polluting the atmosphere. Measuring emissions at source in these cases is not feasible.

Therefore, emission standards and ambient quality standards face the same difficulties. To determine a reasonable emissions standard, the effect on ambient quality must be known. To control ambient quality, decisions have to be made on how to control emissions.

Due to the difficulty of monitoring ambient quality and emission standards, standards are imposed frequently on abatement equipment, technological processes or raw materials. An obvious case is the legislated standards for emission equipment and type of fuel for automobiles. The

justification for these standards is that a direct measure of emissions is not feasible, given the number of emission sources.

There are strong economic arguments against the use of standards on abatement equipment, technological processes or raw materials used as indirect methods for reducing emissions or improving ambient environmental quality. If emissions standards have been established or imputed from environmental standards, then the least expensive methods of achieving these standards should be employed. Polluters have every incentive to choose the most efficient method of meeting emission standards, so there is no reason to impose methods. Whether these considerations override the ease of implementation and monitoring of equipment standards depends on the case under consideration (Baumol and Oates, 1979).

The most obvious difficulty with any standards policy is the determination of a standard. Even in the simplest circumstances, determining the efficient level of pollution requires extensive information that is at best costly to obtain and frequently unobtainable (Kneese and Schultze, 1975; Baumol and Oates, 1979). Even in the simple example represented in Figure 6-1, knowledge of the *MSC* and *MV* curves is needed to determine the efficient standard, X^*. In more realistic situations much more information would be needed as has been discussed in the previous section.

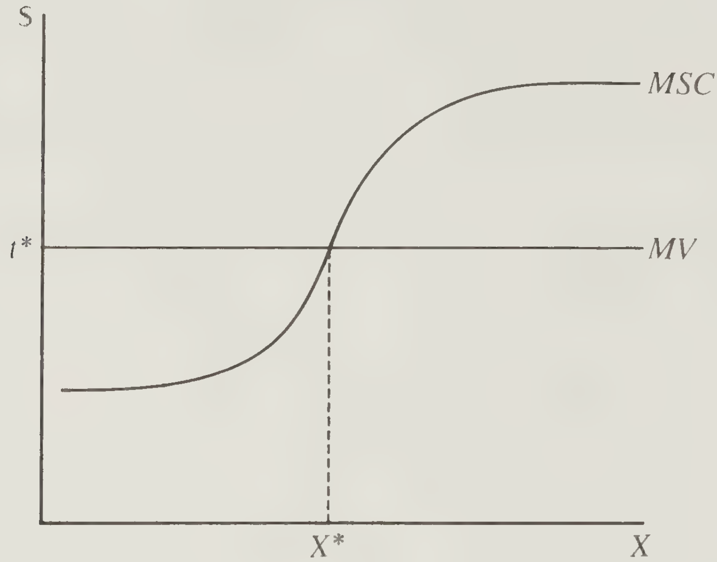
To evaluate standards in a realistic setting, it is important to determine how much information is needed to establish a correct standard and the effects of incorrect standards, which can be very costly.

To consider a simple example, suppose the regulatory agency has a reasonable estimate of the marginal social cost curve but is quite uncertain about the marginal value curve for polluters. Figure 6-2 portrays circumstances in which standards can efficiently control pollution in spite of the ignorance about abatement costs. In this case, there is a level of pollution after which the marginal social cost increases very rapidly. There is a threshold effect so that small increases in pollution greatly increase marginal social cost. A standard that is established at the threshold level will be correct for a wide range of marginal value curves. Even if the efficient level of pollution is below the threshold level, there is a relatively small cost of establishing the threshold as a standard.

In Figure 6-3, however, circumstances are portrayed in which an incorrect standard can be very costly. In this case, the marginal social cost of pollution is independent of the level of pollution. The efficient standard is determined by the marginal value of pollution. If the marginal value curve is steep, then the cost of setting an incorrect standard can be great.

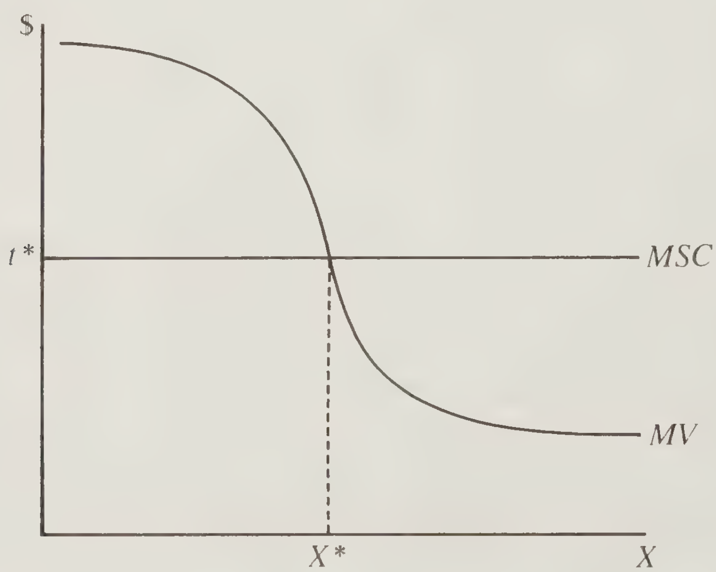
To consider a different case, suppose the regulatory agency has a reasonably accurate knowledge of the marginal value of pollution but is quite uncertain about its marginal social cost. The circumstances in which standards are most useful are now reversed. If the *MV* curve is shown as in Figure 6-3, then standards can be imposed without much knowledge

FIGURE 6-2 Efficient Pollution and Taxation with a Flat *MV* Curve and a Steep *MSC* Curve



Note: X^* is the efficient level of pollution for the graphed *MV* and *MSC* curves; t^* is the tax on pollution that would induce the efficient level of pollution.

FIGURE 6-3 Efficient Pollution and Taxation with a Steep *MV* Curve and a Flat *MSC* Curve



Note: X^* is the efficient level of pollution for the graphed *MV* and *MSC* curves; t^* is the tax on pollution that would induce the efficient level of pollution.

of the marginal social costs. If the *MV* curve is as shown in Figure 6-2, however, a standard based on an incorrect estimate of marginal social cost can cause large inefficiencies.

In more realistic cases, of course, the regulatory agency is uncertain about both the marginal value and the marginal social costs of environmental use and estimates must be formed. If either the *MV* or *MSC* is extremely sensitive to the level of use, however, this information can be used to establish more efficient standards.

Once either ambient quality or total emission and standards have been established in an area, the regulatory body faces the problem of allocating the total allowable emissions among alternative users of the environment. If all that matters is total emissions, then the standard should be achieved in a least-cost fashion. This generally means that different emission sources should be required to reduce emissions by different amounts. Different factories with different technologies and raw materials may have different costs of abatement. For efficiency, the firm that has the lower marginal cost of abatement should reduce emissions more. Because this information is costly to obtain, standards are sometimes imposed by having all polluters reduce emissions by the same percentage. Although this policy is easy to implement, it can be extremely inefficient. This argument loses its force, however, if total emissions do not determine ambient quality because the location of emissions is important. In this case, to achieve efficiency, emissions must be controlled at each source to minimize the cost of maintaining the ambient quality (Dewees, 1983; Rose-Ackerman, 1973; and Atkinson, 1983).

Any type of standards policy has several additional disadvantages. A polluter satisfying a standard has no incentive to improve upon it. Since a regulated standard is unlikely to result in the efficient level of pollution, a policy should provide polluters with an incentive to reduce pollution below the level specified by the standard.[15] In addition, it would be desirable to give polluters an incentive to engage in pollution-related research and development. This is not provided by a standards policy.

A standards policy may be inflexible in response to mistakes in the initial determination of the standards. If achieving a pollution standard costs less than initially anticipated, the ideal policy would indicate that the standard should be adjusted downward. On the other hand, polluters should be able to exceed a pollution standard if the cost of maintaining that standard is substantially higher than the regulators anticipated. A standards policy does not provide the information to make these adjustments.

A related problem is how to control environmental quality or emissions as an area grows. Should quality be allowed to deteriorate in response to economic growth or should quality improve as incomes increase in an area? If a new firm locates near a town, then air quality will decline unless other firms reduce emissions. Should growth be controlled and, if not,

how should emission reductions be allocated among existing firms? The complexity of these problems makes it probable that any standards scheme will be excessively rigid.[16]

Tax-Subsidy Schemes

An alternative to standards is a tax on the use of an environmental resource. A tax acts as a price for the use of the environment and serves to ration the environment among alternative uses.[17] With an appropriate tax rate an efficient use of an environmental resource can be attained. To see this, notice that in Figure 6-1 if a tax of t^* is levied on environmental use, then users would choose the efficient level of use, X^*.

A tax scheme, however, has the same informational problems as a standards policy. A detailed understanding of the relationship between emissions and ambient quality is needed. In addition, information is needed on the costs of reducing various emissions and the social cost of the effects on ambient quality. As with the standards policy, however, there are circumstances in which the efficient tax can be determined without full information and, in addition, the costs of imposing an incorrect tax may not be too large. These circumstances are just the opposite of those in which a standards policy can adequately rely on incomplete information.[18]

First, consider the situation portrayed in Figure 6-2 in which the marginal value of environmental use is the same for all levels of use. If the marginal value is known or can be adequately estimated, then the efficient tax, t^*, can be imposed on users of the environment. This tax can be levied without information on the marginal social cost of environmental use. The environmental users paying this tax will choose the efficient level of use, X^*.

Second, consider the situation portrayed in Figure 6-3 in which the marginal social cost of environmental use is the same for all levels of use. In this case, the efficient tax is equal to the marginal social cost regardless of the marginal value of environmental use. If the marginal social cost can be adequately estimated, then the efficient tax can be imposed and the efficient level of environmental use can be achieved.

In the special cases portrayed in Figures 6-2 and 6-3, the superiority of standards or taxes depends on the knowledge of the environmental agency and the actual shapes of the *MV* and *MSC* curves. Suppose circumstances are as in Figure 6-2. A regulatory agency that had better information on the *MV* curve compared with the *MSC* curve should levy a tax. A regulatory agency that had better information on the *MSC* curve should impose a standard. If circumstances are as portrayed in Figure 6-3, however, these conclusions are reversed.

When the consequences of errors by the regulatory agency are examined, we also find that taxes and standards have quite different effects. Suppose the environmental agency believes the *MV* and *MSC* curves are as shown in Figure 6-1 and levies the tax, t^*. The environment will be used

at the level, X^*, which is efficient if the environmental agency's estimates of *MV* and *MSC* are correct. If the true *MV* curve is higher, however, the efficient level of resource use is above X^* but the actual level of use is even greater. Therefore, there will be an excessive use of the environment. If the true *MV* curve is lower than expected, then the use of the environment is too low.

Alternatively, suppose the environmental agency establishes a standard at X^*. Then, if the true *MV* curve is higher than expected, actual use is X^*, which is below the efficient level. If the true *MV* curve is lower than expected, then the actual use is excessive. Therefore, the tax and the standard policy respond in opposite directions to differences between the perceived and the actual marginal value of resource use. Which policy is appropriate depends on the perceived costs of these errors.

In general, neither taxes nor standards have informational advantages compared with the other. There are other reasons, however, why one might prefer a tax policy to standards. Perhaps the most important is that a tax provides an economic incentive to use the environment efficiently. Regardless of the current level of use, each user of the environment has an incentive to reduce use further in order to reduce the tax payment. With a standards policy, no user of the environment has an incentive to reduce use below the standard. In addition, with a tax on environmental use there are incentives to invest in research and development designed to reduce environmental use in the future.

A second advantage of a tax policy is that it avoids the problem of how to allocate standards among alternative users of the environment. The tax decentralizes this decision by letting potential users choose their levels of resource use. This advantage, however, depends on there being many users of the environment who have the same effect on the ambient quality of the environment. In this case, all users pay the same tax and achieve an efficient distribution of total use. In many circumstances, however, users in different locations have different effects on the environment. In this case, the efficient tax system will have different charges for different users. If each user faces a different tax, then no decentralization is achieved in the allocation of total use.

A third advantage of a tax scheme is that it decentralizes the response to economic growth. Since any new user must pay the tax, growth is automatically controlled in a decentralized and efficient fashion. Again, however, if new users have different effects on the environment than old users, then their tax rates differ. In this case, the allocation of the environment between new and previous users cannot be decentralized by the tax system and must be determined by the environmental agency.

Subsidy schemes have also been proposed for controlling environmental use. Like a tax on use, a subsidy to reduce use can provide economic incentives to efficiently use the environment. Although the major difference between a tax and a subsidy scheme is the distributional effects

of each, there are also some administrative differences. The subsidy scheme has several disadvantages in addition to the disadvantages of the tax policy. It requires that a level of use be specified below which the user will be subsidized. The level of use prior to the subsidy could be used, but this level would not seem reasonable as economic conditions changed. Also, there is the problem of how to treat new users. If they received a subsidy, this policy could actually encourage increased use of the environment. Finally, the subsidy uses public funds which must be obtained from some other source (Baumol and Oates, 1979; Dewees, 1983; Dewees and Sims, 1976; Polinsky, 1979).

Subsidies and tax incentives have been used to encourage the purchase of pollution abatement equipment or purification facilities in the case of water. These schemes have little to recommend them. They have all of the disadvantages of subsidies to reduce environmental use and, in addition, do not encourage least-cost methods of environmental control. Frequently, these policies have little effect because a polluter may have no incentive to use pollution abatement equipment even if it is heavily subsidized. If the subsidy is effective it encourages the use of certain types of equipment when changes in raw materials or the production process may be a much cheaper method of improving the environment (Baumol and Oates, 1975, 1979).

Marketable Permits for Environmental Use

A policy that has attracted the attention of economists in recent years is the issuance of marketable permits for environmental use.[19] The regulatory agency determines the total use of the environment and then issues permits allowing use of the specified amount. Potential users are allowed to trade rights among themselves. In effect, a market is established in the rights to use the environment, with a fixed supply determined by the regulatory agency.

The marketable permit scheme is essentially a standards policy with an efficient mechanism for distributing total allowable environmental use among users. This policy has great advantages when different users have the same effect on the environment. The regulatory agency keeps control over total use while an efficient allocation among users is achieved by the market in rights.

The marketable permit policy loses its allocative advantage over a simple standard policy when different users have different effects on the environment and therefore require separate markets. These separate groups either cannot be allowed to trade or can only be allowed to trade permits at fixed rates of exchange. In the former case, the regulatory agency must establish separate standards for each permit market. In the latter, the rate of exchange of permits in different markets must be specified by the regulatory agency. In either case, the agency must make allocative deci-

sions and the scope for decentralized allocation by markets is reduced. The greater the diversity of effects by different polluters, the greater this problem will be and the less useful is a marketable permit policy.

One major disadvantage of the marketable permit policy is that the market in permits may not be competitive (Dales, 1968b; Kneese and Schultze, 1975). This problem is more likely to occur if many different permit markets are established for users with different effects. It can also occur, however, if there is a small number of users of a particular environmental resource. In Canada, a few firms produce a large proportion of the sulphur dioxide emitted into the atmosphere and, for some waterways, a few users are dominant. If the number of participants in a permit market is small, then each one can have an important effect on the price of permits. In this case, large users distort the market price and an efficient allocation of the rights is not achieved.

An important issue with marketable rights is how they are to be issued. As the permits can be sold at the market price, they are valuable assets to the person who initially receives them. One possibility is to give them to existing users in proportion to use levels. This would reduce the economic loss to users of environmental control and, thereby, might make the policy more acceptable politically. An alternative is to sell the initial rights to the highest bidder. This would generate revenues for the program and would not treat existing users differently from new users. Because the permits can be re-traded, however, the initial distribution or pricing of the permits does not affect the efficiency of the policy.

An important feature of a permit market is that the market generates valuable information that can be used by the regulator. If the market for permits is competitive, the price will equal the marginal value of the environment to the user. The marginal value depends on total allowable use which is the standard determined by the regulator. If the efficient standard is established, indicated by X^* in Figure 6-1, then marginal value is equal to marginal social cost. If a standard is established at some X below X^*, then the price will equal the marginal value at X and will exceed the marginal social cost of resource use. Similarly, a standard allowing too much resource use would be revealed by a permit price that is lower than the estimated social cost of resource use. Therefore, the market for environmental use permits generates valuable information about the benefits of environmental use that could be incorporated into the future decisions of the regulatory agency. Unfortunately, any iterative procedure that tries to exploit the information provided by the permit market will encounter the problems of all iterative procedures. Speculation about future decisions of the number of permits to issue can distort current prices so that they do not measure the marginal value of resource use. Also, the short-run response to changes in the number of permits can be dramatically different from the response over a longer period when producers can change their production processes. In addition, the scheme introduces uncertainty

for resource users and can distort their long-run decisions. Finally, there are serious political and administrative difficulties in frequently altering the number of permits when this will have serious distributional effects.[20]

There is a non-iterative procedure for obtaining an efficient level of environmental use if the marginal social cost is known (Dasgupta, 1982). Suppose the regulatory agency announces a schedule of prices and permits with the following commitment: if the price of permits is in a specified range then the number of permits specified by the schedule will be supplied to the market. If the agency uses the marginal social cost of environmental use as the schedule of prices and total permits, then an efficient level of resource use can be achieved. Permits will be issued until marginal social cost equals the marginal value of resource use. At this point, X^* in Figure 6-1, the price of permits, will rise no higher so no new permits will be supplied until economic conditions change the marginal value of environmental use. The environmental agency needs no information on the marginal value of resource use to implement this policy.

Although this scheme has many advantages, it has the disadvantage of requiring detailed information about the marginal social cost of all levels of environmental use. The market for permits does not provide this information nor eliminate the need for it. Therefore, the marketable permit policy faces severe informational problems, as do all other policies for controlling environmental use (Dales, 1968b).

The scheme described above, however, suggests simpler, more practical schemes that do not require complete information about the marginal social costs of environmental use. Although they may not always be efficient, they can prevent major departures from efficiency. These schemes are rough approximations to the exact scheme described above. Let the regulatory body issue an initial number of permits that are a best guess at the efficient level of resource use. At the same time, a maximum and a minimum price are announced. If the market price of permits exceeds the maximum price, then new permits will be issued. If the market price falls below the minimum price, the regulatory agency will buy back permits. This ensures that, if large errors are made initially in estimating the marginal value of environmental use, they can be rectified by changes in the standards once the market for rights reveals these errors.

To conclude, marketable permit schemes have many desirable features if the markets for permits are competitive. The use of marketable permits, however, does not avoid the problem of incomplete information common to all public policies for controlling environmental use. The complexity of the permit policy should depend on the detail and reliability of the information available on the marginal social cost of environmental use.

Conclusion

In some areas of Canada, there is currently no need for a public policy to control environmental use. In others, the many conflicting demands on the environment have rendered it a scarce resource requiring control. Demographic and economic growth in the future will continually change the pattern of scarce versus non-scarce environmental resources throughout Canada. A practical public policy for environmental control must be sufficiently flexible to deal with diversity.

When an environmental resource is scarce, selection of the best policy for control depends on a wide variety of circumstances. If the public aspects of the resource are not important and if each user's consumption does not interact with that of others, then markets may function adequately. If the public aspects are important but there are a small number of interdependent users, then private cooperative agreements may be the best form of resource management. If some form of governmental policy is necessary, there is a menu of potentially useful policies including a variety of standards, tax and marketable permit schemes. Each of these policies differs in important respects and each would be the preferred policy in certain circumstances. There is no best policy that solves the problem of controlling all environmental resources. Therefore, in constructing public policies for the environment, a wide range should be considered and specific policies should be moulded to fit specific environmental problems.

Notes

This study was completed in December 1984.

1. For a general discussion, see Dasgupta and Heal (1979), Dasgupta (1982) and Newbery (1980).
2. See Nelson (1981) for a general discussion of this issue.
3. There is an enormous literature on these issues. For a sample and future references, see Dasgupta and Heal (1979).
4. These interdependencies have been called "externalities" in the literature but this term has been defined in many different ways. For an introduction to this literature, see Pigou (1920), Bator (1958), Baumol and Oates (1975), Buchanan and Stubblebine (1962), Hjalte, Lidgren and Stahl (1977), Meade (1952, 1973), Newbery (1980); Samuelson (1954, 1955), and the articles in Lin (1976).
5. More realistic examples will be discussed later in the paper. The assumption of competition in this example is unreasonable, of course, but the substantive issues would be the same although more complex if there were many firms and many inhabitants.
6. For general treatments of efficient pricing of public goods, see Samuelson (1955), Starrett (1972) and Newbery (1980).
7. See Osberg (1985) for a related discussion.
8. See Harley (1985) for a discussion of related issues concerning growth.
9. For discussions related to the topic of this section, see Coase (1960), Cheung (1970, 1973), Buchanan and Stubblebine (1962) and Weitzman (1974a).
10. See Anderson (1983) for examples and further references.
11. See Coase (1960) for numerous examples.

12. For an extensive discussion of much of the material in this section, see Kneese and Schultze (1975), Anderson (1983) and Arrow (1974).
13. For a discussion of techniques for obtaining the information required for an environmental policy, see Freeman (1979).
14. For examples of these in use, see Kneese and Schultze (1975), Anderson (1983), Anderson et al. (1977), Portney (1978) and Mills and Peterson (1975).
15. This point is emphasized in Baumol and Oates (1975, 1979).
16. See Kneese and Schultze (1975), Anderson (1983) and Anderson et al. (1977) for discussion and examples.
17. A tax scheme has been strongly endorsed by Baumol and Oates (1975, 1979). The discussion in this section owes much to their work.
18. For further discussion see Dasgupta (1982), Kwerel (1977), Roberts and Spence (1976) and Dasgupta, Hammond and Maskin (1980).
19. For an introduction to this literature, see Dales (1968a, 1968b), Kneese and Schultze (1975) and Atkinson (1983).
20. For a general discussion on this issue in a different context, see Weitzman (1974b) and Archibald (1980).

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